

# SEQUENCE LISTING

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 SCARLATO Vincenzo  
 SCARSELLI Maria  
 GALEOTTI Cesira

<120> ANTIGENIC MENINGOCOCCAL PEPTIDES

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 <151> 2000-07-13

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&lt;211&gt; 14

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&lt;400&gt; 625

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&lt;210&gt; 627

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&lt;212&gt; PRT

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&lt;400&gt; 627

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&lt;210&gt; 629

&lt;211&gt; 6

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<212> PRT  
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<210> 1732  
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<400> 1753  
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<400> 1757  
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<213> Neisseria meningitidis

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5

10

15

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<211> 8

<212> PRT

<213> Neisseria meningitidis

<400> 1769

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5

<210> 1770

<211> 736

<212> DNA

<213> Neisseria meningitidis

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aaacggcaca aacttcacct actcgctgaa aaaagacctc acagatctga ccagtgttgg 300
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cgctggctgg aacattaaaag gcgttaaacc cgggtacaaca gcttccgata acgttgattt 600
cgtcgcgact tacgacacag tcgagttctt gagcgcagat acgaaaacaa cgactgttaa 660
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<210> 1771
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<213> Neisseria meningitidis

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<223> Xaa is any amino acid

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Ile Val Asn Ser Asp Lys Glu Gly Thr Gly Glu Lys Glu Lys Val Glu
      35              40              45

Glu Asn Ser Asp Trp Ala Val Tyr Phe Asn Glu Lys Gly Val Leu Thr
      50              55              60

Ala Arg Glu Ile Thr Xaa Lys Ala Gly Asp Asn Leu Lys Ile Lys Gln
      65              70              75              80

Asn Gly Thr Asn Phe Thr Tyr Ser Leu Lys Lys Asp Leu Thr Asp Leu
      85              90              95

Thr Ser Val Gly Thr Glu Lys Leu Ser Phe Ser Ala Asn Gly Asn Lys
      100             105             110

Val Asn Ile Thr Ser Asp Thr Lys Gly Leu Asn Phe Ala Lys Glu Thr
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Ala Gly Thr Asn Gly Asp Thr Thr Val His Leu Asn Gly Ile Gly Ser
      130             135             140

Thr Leu Thr Asp Thr Leu Leu Asn Thr Gly Ala Thr Thr Asn Val Thr
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Asn Asp Asn Val Thr Asp Asp Glu Lys Lys Arg Ala Ala Ser Val Lys
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 195 200 205  
 Phe Leu Ser Ala Asp Thr Lys Thr Thr Thr Val Asn Val Glu Ser Lys  
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 <213> *Neisseria meningitidis*

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 tatttagacc cgtacaacg cactgttgcc gtgttgatag tcaattccga taaagaaggc 240  
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 ggagtactaa cagccagaga aatcacccctc aaagccggcg acaacctgaa aatcaaacia 360  
 aacggcacaa acttcaccta ctcgctgaaa aaagacctca cagatctgac cagtgttgga 420  
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 ggcttgaatt ttgcgaaaaga aacggctggg acgaacggcg acaccacggg tcatctgaac 540  
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 gtggaaagca aagacaacgg caagaaaacc gaagttaaaa tcggtgcgaa gacttctgtt 840  
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 acagacgaag gcgaaggctt agtgactgca aaagaagtga ttgatgcagt aaacaaggct 960  
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<212> PRT

<213> Neisseria meningitidis

<400> 1773

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Val	Gln	Arg	Thr	Val	Ala	Val	Leu	Ile	Val	Asn	Ser	Asp	Lys	Glu	Gly	
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			100					105					110			
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		115					120					125				
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	130					135					140					
Ser	Phe	Ser	Ala	Asn	Gly	Asn	Lys	Val	Asn	Ile	Thr	Ser	Asp	Thr	Lys	
145					150					155					160	
Gly	Leu	Asn	Phe	Ala	Lys	Glu	Thr	Ala	Gly	Thr	Asn	Gly	Asp	Thr	Thr	
				165					170					175		
Val	His	Leu	Asn	Gly	Ile	Gly	Ser	Thr	Leu	Thr	Asp	Thr	Leu	Leu	Asn	
			180					185					190			
Thr	Gly	Ala	Thr	Thr	Asn	Val	Thr	Asn	Asp	Asn	Val	Thr	Asp	Asp	Glu	
		195					200					205				
Lys	Lys	Arg	Ala	Ala	Ser	Val	Lys	Asp	Val	Leu	Asn	Ala	Gly	Trp	Asn	
		210					215				220					
Ile	Lys	Gly	Val	Lys	Pro	Gly	Thr	Thr	Ala	Ser	Asp	Asn	Val	Asp	Phe	
225					230					235					240	
Val	Arg	Thr	Tyr	Asp	Thr	Val	Glu	Phe	Leu	Ser	Ala	Asp	Thr	Lys	Thr	
				245					250					255		
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			260					265					270			
Lys	Ile	Gly	Ala	Lys	Thr	Ser	Val	Ile	Lys	Glu	Lys	Asp	Gly	Lys	Leu	
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Val	Thr	Gly	Lys	Asp	Lys	Gly	Glu	Asn	Gly	Ser	Ser	Thr	Asp	Glu	Gly	
290						295					300					
Glu	Gly	Leu	Val	Thr	Ala	Lys	Glu	Val	Ile	Asp	Ala	Val	Asn	Lys	Ala	
305					310					315					320	
Gly	Trp	Arg	Met	Lys	Thr	Thr	Thr	Ala	Asn	Gly	Gln	Thr	Gly	Gln	Ala	
				325					330					335		
Asp	Lys	Phe	Glu	Thr	Val	Thr	Ser	Gly	Thr	Asn	Val	Thr	Phe	Ala	Ser	
			340					345					350			
Gly	Lys	Gly	Thr	Thr	Ala	Thr	Val	Ser	Lys	Asp	Asp	Gln	Gly	Asn	Ile	
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Thr	Val	Met	Tyr	Asp	Val	Asn	Val	Gly	Asp	Ala	Leu	Asn	Val	Asn	Gln	
	370					375						380				
Leu	Gln	Asn	Ser	Gly	Trp	Asn	Leu	Asp	Ser	Lys	Ala	Val	Ala	Gly	Ser	
385					390					395					400	
Ser	Gly	Lys	Val	Ile	Ser	Gly	Asn	Val	Ser	Pro	Ser	Lys	Gly	Lys	Met	
			405					410						415		
Asp	Glu	Thr	Val	Asn	Ile	Asn	Ala	Gly	Asn	Asn	Ile	Glu	Ile	Thr	Arg	
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	435						440					445				
Ser	Val	Ser	Leu	Gly	Ala	Gly	Ala	Asp	Ala	Pro	Thr	Leu	Ser	Val	Asp	
	450					455					460					
Gly	Asp	Ala	Leu	Asn	Val	Gly	Ser	Lys	Lys	Asp	Asn	Lys	Pro	Val	Arg	
465					470					475					480	
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			500					505					510			
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Gly	Leu	Val	Gln	Ala	Tyr	Leu	Pro	Gly	Lys	Ser	Met	Met	Ala	Ile	Gly	
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Gly	Gly	Thr	Tyr	Arg	Gly	Glu	Ala	Gly	Tyr	Ala	Ile	Gly	Tyr	Ser	Ser	
545					550					555					560	
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<210> 1774  
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<212> DNA  
<213> *Neisseria meningitidis*

<220>  
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gaatccgtac aacgctctgt cgtagggagc attcaagcca gtatggaagg cagcggcgaa 240  
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<220>  
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Thr	Val	Lys	Thr	Ala	Val	Leu	Ala	Thr	Leu	Leu	Phe	Ala	Thr	Val	Gln
		35					40					45			
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	50					55					60				
Arg	Ser	Val	Val	Gly	Ser	Ile	Gln	Ala	Ser	Met	Glu	Gly	Ser	Gly	Glu
65					70					75					80
Leu	Glu	Thr	Ile	Ser	Leu	Ser	Met	Thr	Asn	Asp	Ser	Lys	Glu	Phe	Val
				85					90					95	
Asp	Pro	Tyr	Ile	Val	Val	Thr	Leu	Lys	Ala	Gly	Asp	Asn	Leu	Lys	Ile
			100					105					110		
Lys	Gln	Asn	Thr	Asn	Glu	Asn	Thr	Asn	Ala	Ser	Ser	Phe	Thr	Tyr	Ser
		115					120					125			
Leu	Lys	Lys	Asp	Leu	Thr	Gly	Leu	Ile	Asn	Val	Xaa	Thr	Glu	Lys	Leu
	130					135					140				
Ser	Phe	Gly	Ala	Asn	Gly	Lys	Lys	Val	Asn	Ile	Ile	Ser	Asp	Thr	Lys
145					150					155					160
Gly	Leu	Asn	Phe	Ala	Lys	Glu	Thr	Ala	Gly	Thr	Asn	Gly	Asp	Thr	Thr
				165					170					175	
Val	His	Leu	Asn	Gly	Ile	Gly	Ser	Thr	Leu	Thr	Asp	Thr	Leu	Ala	Gly
			180					185					190		
Ser	Ser	Ala	Ser	His	Val	Asp	Ala	Gly	Asn	Xaa	Ser	Thr	His	Tyr	Thr
		195					200					205			
Arg	Ala	Ala	Ser	Ile	Lys	Asp	Val	Leu	Asn	Ala	Gly	Trp	Asn	Ile	Lys
	210					215					220				
Gly	Val	Lys	Xaa	Gly	Ser	Thr	Thr	Gly	Gln	Ser	Glu	Asn	Val	Asp	Phe
225					230					235					240
Val	Arg	Thr	Tyr	Asp	Thr	Val	Glu	Phe	Leu	Ser	Ala	Asp	Thr	Xaa	Thr
				245					250					255	
Thr	Thr	Val	Asn	Val	Glu	Ser	Lys	Asp	Asn	Gly	Lys	Arg	Thr	Glu	Val
			260					265					270		
Lys	Ile	Gly	Ala	Lys	Thr	Ser	Val	Ile	Lys	Glu	Lys	Asp	Gly	Lys	Leu
		275					280					285			
Val	Thr	Gly	Lys	Gly	Lys	Gly	Glu	Asn	Gly	Ser	Ser	Thr	Asp	Glu	Gly
		290					295					300			
Glu	Gly	Leu	Val	Thr	Ala	Lys	Glu	Val	Ile	Asp	Ala	Val	Asn	Lys	Ala

305					310					315				320	
Gly	Trp	Arg	Met	Lys	Thr	Thr	Thr	Ala	Asn	Gly	Gln	Thr	Gly	Gln	Ala
				325					330					335	
Asp	Lys	Phe	Glu	Thr	Val	Thr	Ser	Gly	Thr	Asn	Val	Thr	Phe	Ala	Ser
			340					345					350		
Gly	Lys	Gly	Thr	Thr	Ala	Thr	Val	Ser	Lys	Asp	Asp	Gln	Gly	Asn	Ile
		355					360					365			
Thr	Val	Met	Tyr	Asp	Val	Asn	Val	Gly	Asp	Ala	Leu	Asn	Val	Asn	Gln
	370					375					380				
Leu	Gln	Asn	Ser	Gly	Trp	Asn	Leu	Asp	Ser	Lys	Ala	Val	Ala	Gly	Ser
385					390					395					400
Ser	Gly	Lys	Val	Ile	Ser	Gly	Asn	Val	Ser	Pro	Ser	Lys	Gly	Lys	Met
				405					410					415	
Asp	Glu	Thr	Val	Asn	Ile	Asn	Ala	Gly	Asn	Asn	Ile	Glu	Ile	Ser	Arg
			420					425					430		
Asn	Gly	Lys	Asn	Ile	Asp	Ile	Ala	Thr	Ser	Met	Ala	Pro	Gln	Phe	Ser
		435					440					445			
Ser	Val	Ser	Leu	Gly	Ala	Gly	Ala	Asp	Ala	Pro	Thr	Leu	Ser	Val	Asp
	450					455					460				
Asp	Glu	Gly	Ala	Leu	Asn	Val	Gly	Ser	Lys	Asp	Ala	Asn	Lys	Pro	Val
465					470					475					480
Arg	Ile	Thr	Asn	Val	Ala	Pro	Gly	Val	Lys	Xaa	Gly	Asp	Val	Thr	Asn
			485						490					495	
Val	Xaa	Gln	Leu	Lys	Gly	Val	Ala	Gln	Asn	Leu	Asn	Asn	Arg	Ile	Asp
		500						505					510		
Asn	Val	Asp	Gly	Asn	Ala	Arg	Ala	Gly	Ile	Ala	Gln	Ala	Ile	Ala	Thr
		515					520					525			
Ala	Gly	Leu	Val	Gln	Ala	Tyr	Leu	Pro	Gly	Lys	Ser	Met	Met	Ala	Ile
	530					535					540				
Gly	Gly	Gly	Thr	Tyr	Arg	Gly	Glu	Ala	Gly	Tyr	Ala	Ile	Gly	Tyr	Ser
545					550					555					560
Ser	Ile	Ser	Asp	Gly	Gly	Asn	Trp	Ile	Ile	Lys	Gly	Thr	Ala	Ser	Gly
				565					570					575	
Asn	Ser	Arg	Gly	His	Phe	Gly	Ala	Ser	Ala	Ser	Val	Gly	Tyr	Gln	Trp
			580					585					590		

<210> 1776

<211> 492

<212> DNA  
<213> Neisseria meningitidis

<400> 1776  
atgttacggtt tgactgcttt agccgtatgc accgccctcg ctttggggcgc gtgttcgccg 60  
caaaattccg actctgcccc acaagccaaa gaacaggcgg tttccgccgc acaaaccgaa 120  
ggcgcgtccg ttaccgtcaa aaccgcgcgc ggcgacgttc aaataccgca aaaccccgaa 180  
cgcacgcgcg tttacgattt gggatgctc gacacctga gcaaactggg cgtgaaaacc 240  
ggtttggtccg tcgataaaaa ccgcctgccg tatttagagg aatatttcaa aacgacaaaa 300  
cctgccggca ctttggttcga gccggattac gaaacgctca acgcttacia accgcagctc 360  
atcatcatcg gcagccgcgc cgccaaggcg tttgacaaat tgaacgaaat cgcgccgacc 420  
atcgrmwtga ccgccgatac cgccaacctc aaagaaagtg ccaargaggc atcgacgctg 480  
gcgcaaattc tc 492

<210> 1777  
<211> 164  
<212> PRT  
<213> Neisseria meningitidis

<220>  
<221> misc\_feature  
<222> (1)...(164)  
<223> Xaa is any amino acid

<400> 1777  
Met Leu Arg Leu Thr Ala Leu Ala Val Cys Thr Ala Leu Ala Leu Gly  
5 10 15  
Ala Cys Ser Pro Gln Asn Ser Asp Ser Ala Pro Gln Ala Lys Glu Gln  
20 25 30  
Ala Val Ser Ala Ala Gln Thr Glu Gly Ala Ser Val Thr Val Lys Thr  
35 40 45  
Ala Arg Gly Asp Val Gln Ile Pro Gln Asn Pro Glu Arg Ile Ala Val  
50 55 60  
Tyr Asp Leu Gly Met Leu Asp Thr Leu Ser Lys Leu Gly Val Lys Thr  
65 70 75 80  
Gly Leu Ser Val Asp Lys Asn Arg Leu Pro Tyr Leu Glu Glu Tyr Phe  
85 90 95  
Lys Thr Thr Lys Pro Ala Gly Thr Leu Phe Glu Pro Asp Tyr Glu Thr  
100 105 110  
Leu Asn Ala Tyr Lys Pro Gln Leu Ile Ile Ile Gly Ser Arg Ala Ala  
115 120 125  
Lys Ala Phe Asp Lys Leu Asn Glu Ile Ala Pro Thr Ile Xaa Xaa Thr  
130 135 140  
Ala Asp Thr Ala Asn Leu Lys Glu Ser Ala Lys Glu Ala Ser Thr Leu  
145 150 155 160  
Ala Gln Ile Phe

<210> 1778  
 <211> 966  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1778  
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 caaaattccg actctgcccc acaagccaaa gaacaggcgg tttccgccgc acaaaccgaa 120  
 ggcgcgtccg ttaccgtcaa aaccgcgcgc ggcgacgttc aaataccgca aaaccccgaa 180  
 cgcacgcgcg tttacgattt gggtagctc gacaccttga gcaaactggg cgtgaaaacc 240  
 ggtttgtccg tcgataaaaa ccgcctgccg tatttagagg aatatttcaa aacgacaaaa 300  
 cctgccggca ctttgttcga gccggattac gaaacgctca acgcttacia accgcagctc 360  
 atcatcatcg gcagccgcgc cgccaaggcg tttgacaaat tgaacgaaat cgcgccgacc 420  
 atcgaaatga ccgccgatac cgccaacctc aaagaaagtg ccaaagagcg catcgacgcg 480  
 ctggcgcaaa tcttcggcaa acaggcggaa gccgacaagc tgaaggcgga aatcgacgcg 540  
 tcttttgaag ccgcgaaaaac tgccgcacaa ggtaagggca aagggtttggt gatttttggtc 600  
 aacggcggca agatgtcggc tttcggcccc tcttcacgct tgggcggctg gctgcacaaa 660  
 gacatcggcg tttccgctgt cgatgaatca attaaagaag gcagccacgg tcagcctatc 720  
 agctttgaat acctgaaaga gaaaaatccc gactggctgt ttgtccttga ccgaagcgcg 780  
 gccatcggcg aagaggggtc ggcggcgaaa gacgtgttgg ataatccgct ggttgccgaa 840  
 acaaccgctt ggaaaaaagg acaggtcgtg tacctcgttc ctgaaactta tttggcagcc 900  
 ggtggcgcgc aagagctgct gaatgcaagc aaacagggtt cgcagcgttt taacgcggca 960  
 aaataa 966

<210> 1779  
 <211> 321  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 1779  
 Met Leu Arg Leu Thr Ala Leu Ala Val Cys Thr Ala Leu Ala Leu Gly  
 5 10 15  
 Ala Cys Ser Pro Gln Asn Ser Asp Ser Ala Pro Gln Ala Lys Glu Gln  
 20 25 30  
 Ala Val Ser Ala Ala Gln Thr Glu Gly Ala Ser Val Thr Val Lys Thr  
 35 40 45  
 Ala Arg Gly Asp Val Gln Ile Pro Gln Asn Pro Glu Arg Ile Ala Val  
 50 55 60  
 Tyr Asp Leu Gly Met Leu Asp Thr Leu Ser Lys Leu Gly Val Lys Thr  
 65 70 75 80  
 Gly Leu Ser Val Asp Lys Asn Arg Leu Pro Tyr Leu Glu Glu Tyr Phe  
 85 90 95  
 Lys Thr Thr Lys Pro Ala Gly Thr Leu Phe Glu Pro Asp Tyr Glu Thr  
 100 105 110  
 Leu Asn Ala Tyr Lys Pro Gln Leu Ile Ile Ile Gly Ser Arg Ala Ala  
 115 120 125

Lys Ala Phe Asp Lys Leu Asn Glu Ile Ala Pro Thr Ile Glu Met Thr  
 130 135 140  
 Ala Asp Thr Ala Asn Leu Lys Glu Ser Ala Lys Glu Arg Ile Asp Ala  
 145 150 155 160  
 Leu Ala Gln Ile Phe Gly Lys Gln Ala Glu Ala Asp Lys Leu Lys Ala  
 165 170 175  
 Glu Ile Asp Ala Ser Phe Glu Ala Ala Lys Thr Ala Ala Gln Gly Lys  
 180 185 190  
 Gly Lys Gly Leu Val Ile Leu Val Asn Gly Gly Lys Met Ser Ala Phe  
 195 200 205  
 Gly Pro Ser Ser Arg Leu Gly Gly Trp Leu His Lys Asp Ile Gly Val  
 210 215 220  
 Pro Ala Val Asp Glu Ser Ile Lys Glu Gly Ser His Gly Gln Pro Ile  
 225 230 235 240  
 Ser Phe Glu Tyr Leu Lys Glu Lys Asn Pro Asp Trp Leu Phe Val Leu  
 245 250 255  
 Asp Arg Ser Ala Ala Ile Gly Glu Glu Gly Gln Ala Ala Lys Asp Val  
 260 265 270  
 Leu Asp Asn Pro Leu Val Ala Glu Thr Thr Ala Trp Lys Lys Gly Gln  
 275 280 285  
 Val Val Tyr Leu Val Pro Glu Thr Tyr Leu Ala Ala Gly Gly Ala Gln  
 290 295 300  
 Glu Leu Leu Asn Ala Ser Lys Gln Val Ala Asp Ala Phe Asn Ala Ala  
 305 310 315 320  
 Lys

<210> 1780  
 <211> 966  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1780  
 atgttacggt tgactgcttt agccgtatgc accgccctcg ctttgggcgc gtgttcgcgc 60  
 caaaattccg actctgcccc acaagccaaa gaacaggcgcg tttccgcgcg acaatccgaa 120  
 ggcgtgtccg ttaccgtcaa aacggcgcg gcgatgttc aaataccgca aaaccccgaa 180  
 cgtatcgccg tttacgattt gggtagctc gacacctga gcaaactggg cgtgaaaacc 240  
 ggtttgtccg tcgataaaaa ccgcctgccg tatttagagg aatatttcaa aacgacaaaa 300  
 cctgccggaa ctttgttcga gccggattac gaaacgctca acgcttacia accgcagctc 360  
 atcatcatcg gcagccgcgc agccaaagcg tttgacaaat tgaacgaaat cgcgcgcgacc 420  
 atcgaaatga ccgccgatac cgccaacctc aaagaaagtg ccaaagagcg tatcgacgcg 480  
 ctggcgcaaa tcttcggcaa aaaggcggaa gccgacaagc tgaaggcgga aatcgacgcg 540  
 tcttttgaag ccgcgaaaac tgccgcgcaa ggcaaaggca agggtttggt gatttttggtc 600  
 aacggcggca agatgtccgc cttcggcccc tcttcacgac tgggcggctg gctgcacaaa 660



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gacatcggcg ttcccgctgt tgacgaagcc atcaaagaag gcagccacgg tcagcctatc 720
agctttgaat acctgaaaga gaaaaatccc gactggctgt ttgtccttga ccgcagcgcg 780
gccatcggcg aagagggtca ggcggcgaaa gacgtgttga acaatccgct ggttgccgaa 840
acaaccgctt ggaaaaaagg acaagtcgtt taccttggtc ctgaaactta tttggcagcc 900
ggtggcgcgc aagagctact gaatgcaagc aaacaggttg ccgacgcttt taacgcggca 960
aaataa

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<210> 1781
<211> 321
<212> PRT
<213> Neisseria meningitidis

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<400> 1781
Met Leu Arg Leu Thr Ala Leu Ala Val Cys Thr Ala Leu Ala Leu Gly
      5              10              15

Ala Cys Ser Pro Gln Asn Ser Asp Ser Ala Pro Gln Ala Lys Glu Gln
      20              25              30

Ala Val Ser Ala Ala Gln Ser Glu Gly Val Ser Val Thr Val Lys Thr
      35              40              45

Ala Arg Gly Asp Val Gln Ile Pro Gln Asn Pro Glu Arg Ile Ala Val
      50              55              60

Tyr Asp Leu Gly Met Leu Asp Thr Leu Ser Lys Leu Gly Val Lys Thr
      65              70              75              80

Gly Leu Ser Val Asp Lys Asn Arg Leu Pro Tyr Leu Glu Glu Tyr Phe
      85              90              95

Lys Thr Thr Lys Pro Ala Gly Thr Leu Phe Glu Pro Asp Tyr Glu Thr
      100             105             110

Leu Asn Ala Tyr Lys Pro Gln Leu Ile Ile Ile Gly Ser Arg Ala Ala
      115             120             125

Lys Ala Phe Asp Lys Leu Asn Glu Ile Ala Pro Thr Ile Glu Met Thr
      130             135             140

Ala Asp Thr Ala Asn Leu Lys Glu Ser Ala Lys Glu Arg Ile Asp Ala
      145             150             155             160

Leu Ala Gln Ile Phe Gly Lys Lys Ala Glu Ala Asp Lys Leu Lys Ala
      165             170             175

Glu Ile Asp Ala Ser Phe Glu Ala Ala Lys Thr Ala Ala Gln Gly Lys
      180             185             190

Gly Lys Gly Leu Val Ile Leu Val Asn Gly Gly Lys Met Ser Ala Phe
      195             200             205

Gly Pro Ser Ser Arg Leu Gly Gly Trp Leu His Lys Asp Ile Gly Val
      210             215             220

Pro Ala Val Asp Glu Ala Ile Lys Glu Gly Ser His Gly Gln Pro Ile

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225		230		235		240
Ser Phe Glu Tyr Leu Lys Glu Lys Asn Pro Asp Trp Leu Phe Val Leu						
	245			250		255
Asp Arg Ser Ala Ala Ile Gly Glu Glu Gly Gln Ala Ala Lys Asp Val						
	260			265		270
Leu Asn Asn Pro Leu Val Ala Glu Thr Thr Ala Trp Lys Lys Gly Gln						
	275			280		285
Val Val Tyr Leu Val Pro Glu Thr Tyr Leu Ala Ala Gly Gly Ala Gln						
	290			295		300
Glu Leu Leu Asn Ala Ser Lys Gln Val Ala Asp Ala Phe Asn Ala Ala						
305		310		315		320

Lys

<210> 1782  
 <211> 375  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1782  
 atgaaacttc tgaccaccgc aatcctgtct tccgcaatcg cgctcagcag tatggctgcc 60  
 gccgctggca cggacaaccc cactgttgca aaaaaaacg tcagctacgt ctgccagcaa 120  
 ggtaaaaaag tcaaagtaac ctacggcttc aacaaacagg gtctgaccac atacgcttcc 180  
 gccgtcatca acggcaaacg cgtgcaaatt cctgtcaatt tggacaaatc cgacaatgtg 240  
 gaaacattct acggcaaaga aggcggttat gttttgggta ccggcgtgat ggatggcaaa 300  
 tcctaccgca aacagcccat tatgattacc gcacctgaca accaaatcgt cttcaaagac 360  
 tgttccccac gttaa 375

<210> 1783  
 <211> 124  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 1783  
 Met Lys Leu Leu Thr Thr Ala Ile Leu Ser Ser Ala Ile Ala Leu Ser  
 5 10 15  
 Ser Met Ala Ala Ala Gly Thr Asp Asn Pro Thr Val Ala Lys Lys  
 20 25 30  
 Thr Val Ser Tyr Val Cys Gln Gln Gly Lys Lys Val Lys Val Thr Tyr  
 35 40 45  
 Gly Phe Asn Lys Gln Gly Leu Thr Thr Tyr Ala Ser Ala Val Ile Asn  
 50 55 60  
 Gly Lys Arg Val Gln Met Pro Val Asn Leu Asp Lys Ser Asp Asn Val  
 65 70 75 80

Glu Thr Phe Tyr Gly Lys Glu Gly Gly Tyr Val Leu Gly Thr Gly Val  
85 90 95

Met Asp Gly Lys Ser Tyr Arg Lys Gln Pro Ile Met Ile Thr Ala Pro  
100 105 110

Asp Asn Gln Ile Val Phe Lys Asp Cys Ser Pro Arg  
115 120

<210> 1784

<211> 375

<212> DNA

<213> Neisseria meningitidis

<400> 1784

atgaaacttc tgaccaccgc aatcctgtct tccgcaatcg cgctcagcag tatggctgct 60  
gctgccggca cgaacaaccc caccgttgcc aaaaaaacg tcagctacgt ctgccagcaa 120  
ggtaaaaaag tcaaagtaac ctacggcttt aacaaacagg gcctgaccac atacgcttcc 180  
gccgtcatca acggcaaacg tgtgcaaatt cctgtcaatt tggacaaatc cgacaatgtg 240  
gaaacattct acggcaaaga aggcgggttat gttttgggta ccggcgatgat ggatggcaaa 300  
tcctatcgca aacagcctat tatgattacc gcacctgaca accaaatcgt cttcaaagac 360  
tgttccccac gttaa 375

<210> 1785

<211> 124

<212> PRT

<213> Neisseria meningitidis

<400> 1785

Met Lys Leu Leu Thr Thr Ala Ile Leu Ser Ser Ala Ile Ala Leu Ser  
5 10 15

Ser Met Ala Ala Ala Ala Gly Thr Asn Asn Pro Thr Val Ala Lys Lys  
20 25 30

Thr Val Ser Tyr Val Cys Gln Gln Gly Lys Lys Val Lys Val Thr Tyr  
35 40 45

Gly Phe Asn Lys Gln Gly Leu Thr Thr Tyr Ala Ser Ala Val Ile Asn  
50 55 60

Gly Lys Arg Val Gln Met Pro Val Asn Leu Asp Lys Ser Asp Asn Val  
65 70 75 80

Glu Thr Phe Tyr Gly Lys Glu Gly Gly Tyr Val Leu Gly Thr Gly Val  
85 90 95

Met Asp Gly Lys Ser Tyr Arg Lys Gln Pro Ile Met Ile Thr Ala Pro  
100 105 110

Asp Asn Gln Ile Val Phe Lys Asp Cys Ser Pro Arg  
115 120

<210> 1786

<211> 519  
<212> DNA  
<213> *Neisseria meningitidis*

<220>  
<221> misc\_feature  
<222> (1)...(519)  
<223> n = A,T,C or G

<400> 1786  
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gcccgagccg atgcgaaaat tctcctaaaa gccatcggtta accgcatcca aaccgaagaa 120  
aagctggaat ccaactcgac cgtatggcaa aagcaggccg gaagcggcag cacggttgaa 180  
acgctgaagc taccgagctt tgaagggccg gcactgccta agctgaccgc tcccggcggc 240  
tatatcgccg acatcccaa aggcaacctc aaaaccgaaa tcgaaaagct ggccaaacag 300  
cccgaatatg cctatctgaa acagcttcag acggtcaagg acgtgaactg gaaccaagta 360  
cagctcgctt acgacaaatg ggactataaa caggaaggcc taaccggagc cggagccgca 420  
attanccgac tggccggttac cgtgggtcacc tcaggcgcag gaaccggagc cgtattggga 480  
ttaanacngn tggccgcccgc cgcaaccgat gcagcattt 519

<210> 1787  
<211> 173  
<212> PRT  
<213> *Neisseria meningitidis*

<220>  
<221> misc\_feature  
<222> (1)...(173)  
<223> Xaa is any amino acid

<400> 1787  
Gly Thr Glu Phe Lys Thr Thr Leu Ser Gly Ala Asp Ile Gln Ala Gly  
5 10 15  
Val Gly Glu Lys Ala Arg Ala Asp Ala Lys Ile Ile Leu Lys Gly Ile  
20 25 30  
Val Asn Arg Ile Gln Thr Glu Glu Lys Leu Glu Ser Asn Ser Thr Val  
35 40 45  
Trp Gln Lys Gln Ala Gly Ser Gly Ser Thr Val Glu Thr Leu Lys Leu  
50 55 60  
Pro Ser Phe Glu Gly Pro Ala Leu Pro Lys Leu Thr Ala Pro Gly Gly  
65 70 75 80  
Tyr Ile Ala Asp Ile Pro Lys Gly Asn Leu Lys Thr Glu Ile Glu Lys  
85 90 95  
Leu Ala Lys Gln Pro Glu Tyr Ala Tyr Leu Lys Gln Leu Gln Thr Val  
100 105 110  
Lys Asp Val Asn Trp Asn Gln Val Gln Leu Ala Tyr Asp Lys Trp Asp  
115 120 125  
Tyr Lys Gln Glu Gly Leu Thr Gly Ala Gly Ala Ala Ile Xaa Ala Leu

130	135	140
Ala Val Thr Val Val Thr Ser Gly Ala Gly Thr Gly Ala Val Leu Gly		
145	150	155 160
Leu Xaa Arg Val Ala Ala Ala Ala Thr Asp Ala Ala Phe		
165	170	

<210> 1788  
 <211> 1923  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1788

atgcaactgc	tggcagccga	aggcattcac	caacaccaat	tgaatgttca	gaaaagtacc	60
cgtttcatcg	gcatcaaagt	gggtaaaagc	aattacagca	aaaacgagct	gaacgaaacc	120
aaactgcccg	tacgcgttat	cgcccaaaca	gccaaaaccc	gttcgggctg	ggataccgta	180
ctcgaaggca	ccgaattcaa	aaccaccctt	tccggagccg	acatacaggc	aggggtgggt	240
gaaaaagccc	gagccgatgc	gaaaattatc	ctaaaaggca	tcgttaaccg	catccaaacc	300
gaagaaaagc	tggaatccaa	ctcgaccgta	tggcaaaagc	aggccggaag	cggcagcacg	360
gttgaaacgc	tgaagctacc	gagctttgaa	gggccggcac	tgcctaagct	gaccgctccc	420
ggcggctata	tcgccgacat	ccccaaaggc	aacctcaaaa	ccgaaatcga	aaagctggcc	480
aaacagcccc	aatatgccta	tctgaaacag	cttcagacgg	tcaaggacgt	gaactggaac	540
caagtacagc	tcgcttacga	caaatgggac	tataaacagg	aaggcctaac	cggagccgga	600
gccgcaatta	tcgcactggc	cgttaccgtg	gtcacctcag	gcgcaggaac	cggagccgta	660
ttgggattaa	acggtgcggc	cgccgcgcga	accgatgcag	catttgccctc	tttggccagc	720
caggcttccg	tatcgttcat	caacaacaaa	ggcaatatcg	gtaacaccct	gaaagagctg	780
ggcagaagca	gcacggtgaa	aaatctgatg	gttgccgtcg	ctaccgcagg	cgtagccgac	840
aaaatcgggtg	cttcggcact	gaacaatgtc	agcgataagc	agtggatcaa	caacctgacc	900
gtcaacctgg	ccaatgcggg	cagtgcgcga	ctgattaata	ccgctgtcaa	cggcggcagc	960
ctgaaagaca	atctggaagc	gaatatcctt	gcggctttgg	tgaatactgc	gcatggagag	1020
gcagcaagta	aaatcaaaca	gttggtatcag	cactacattg	cccataagat	tgcccatgcc	1080
atagcgggct	gtgcggcagc	ggcggcgaat	aaggcgcaagt	gtcaagatgg	tgcgatcggg	1140
gcggcgggtcg	gtgaaatcct	tggcgaaacc	ctactggacg	gcagagaccc	tggcagcctg	1200
aatgtgaagg	acagggcaaa	aatcattgct	aaggcggaagc	tggcagcagg	ggcgggttgcg	1260
gcgttgagta	agggggatgt	gagtacggcg	gcgaatgcgg	ctgctgtggc	ggtagagaat	1320
aattcttttaa	atgatataca	ggatcgtttg	ttgagtggaa	attatgcttt	atgtatgagt	1380
gcaggaggag	cagaaagctt	ttgtgagtct	tatcgaccac	tgggcttgcc	acactttgta	1440
agtgttttcag	gagaaatgaa	attacctaata	aaattcggga	atcgatatgt	taatggaaaa	1500
ttaattatta	acactagaaa	tggcaatgta	tatttctctg	taggtaaaat	atggagtact	1560
gtaaaatcaa	caaaatcaaa	tataagtggg	gtatctgtcg	gttgggtttt	aaatgtttcc	1620
cctaattgatt	atttaaaaga	agcatctatg	aatgatttca	gaaatagtaa	tcaaaataaa	1680
gcctatgcag	aaatgatttc	ccagactttg	gtaggtgaga	gtgttggtgg	tagtctttgt	1740
ctgacaagag	cctgcttttc	ggtaagttca	acaatatcta	aatctaaatc	tcctttttaa	1800
gattcaaaaa	ttattgggga	aatcggtttg	ggaagtgggtg	ttgctgcagg	agtagaaaaa	1860
acaatatata	taggtaacat	aaaagatatt	gataaattta	ttagtgcaaa	cataaaaaaa	1920
tag						1923

<210> 1789  
 <211> 640  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 1789

Met Gln Leu Leu Ala Ala Glu Gly Ile His Gln His Gln Leu Asn Val
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Ser	Lys	Asn	Glu	Leu	Asn	Glu	Thr	Lys	Leu	Pro	Val	Arg	Val	Ile	Ala
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Arg	Ile	Gln	Thr	Glu	Glu	Lys	Leu	Glu	Ser	Asn	Ser	Thr	Val	Trp	Gln
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Ala	Asp	Ile	Pro	Lys	Gly	Asn	Leu	Lys	Thr	Glu	Ile	Glu	Lys	Leu	Ala
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Lys	Gln	Pro	Glu	Tyr	Ala	Tyr	Leu	Lys	Gln	Leu	Gln	Thr	Val	Lys	Asp
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Val	Asn	Trp	Asn	Gln	Val	Gln	Leu	Ala	Tyr	Asp	Lys	Trp	Asp	Tyr	Lys
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Gln	Glu	Gly	Leu	Thr	Gly	Ala	Gly	Ala	Ala	Ile	Ile	Ala	Leu	Ala	Val
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Thr	Val	Val	Thr	Ser	Gly	Ala	Gly	Thr	Gly	Ala	Val	Leu	Gly	Leu	Asn
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225					230					235					240
Gln	Ala	Ser	Val	Ser	Phe	Ile	Asn	Asn	Lys	Gly	Asn	Ile	Gly	Asn	Thr
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Val	Ala	Thr	Ala	Gly	Val	Ala	Asp	Lys	Ile	Gly	Ala	Ser	Ala	Leu	Asn
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Asn	Val	Ser	Asp	Lys	Gln	Trp	Ile	Asn	Asn	Leu	Thr	Val	Asn	Leu	Ala
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Asn	Val	Lys	Asp	Arg	Ala	Lys	Ile	Ile	Ala	Lys	Ala	Lys	Leu	Ala	Ala	
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Gly	Ala	Val	Ala	Ala	Leu	Ser	Lys	Gly	Asp	Val	Ser	Thr	Ala	Ala	Asn	
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Ala	Ala	Ala	Val	Ala	Val	Glu	Asn	Asn	Ser	Leu	Asn	Asp	Ile	Gln	Asp	
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Arg	Leu	Leu	Ser	Gly	Asn	Tyr	Ala	Leu	Cys	Met	Ser	Ala	Gly	Gly	Ala	
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Glu	Ser	Phe	Cys	Glu	Ser	Tyr	Arg	Pro	Leu	Gly	Leu	Pro	His	Phe	Val	
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Ser	Val	Ser	Gly	Glu	Met	Lys	Leu	Pro	Asn	Lys	Phe	Gly	Asn	Arg	Met	
				485					490					495		
Val	Asn	Gly	Lys	Leu	Ile	Ile	Asn	Thr	Arg	Asn	Gly	Asn	Val	Tyr	Phe	
			500					505					510			
Ser	Val	Gly	Lys	Ile	Trp	Ser	Thr	Val	Lys	Ser	Thr	Lys	Ser	Asn	Ile	
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Leu	Lys	Glu	Ala	Ser	Met	Asn	Asp	Phe	Arg	Asn	Ser	Asn	Gln	Asn	Lys	
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Gly	Ser	Leu	Cys	Leu	Thr	Arg	Ala	Cys	Phe	Ser	Val	Ser	Ser	Thr	Ile	
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Gly	Leu	Gly	Ser	Gly	Val	Ala	Ala	Gly	Val	Glu	Lys	Thr	Ile	Tyr	Ile	

610

615

620

Gly Asn Ile Lys Asp Ile Asp Lys Phe Ile Ser Ala Asn Ile Lys Lys  
 625 630 635 640

&lt;210&gt; 1790

&lt;211&gt; 2291

&lt;212&gt; DNA

&lt;213&gt; Neisseria meningitidis

&lt;220&gt;

&lt;221&gt; misc\_feature

&lt;222&gt; (1)...(1790)

&lt;223&gt; n = A,T,C or G

&lt;400&gt; 1790

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gcggcgatta tcgcactggc cgttaccgtg gtcacctcag gcgcaggaac cggagccgta 660
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cgaattaaat atgagattcc tacactagac aggacaggta aacctgatgg tggatttaag 2040
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2291



<210> 1791  
 <211> 761  
 <212> PRT  
 <213> Neisseria meningitidis

<220>  
 <221> misc\_feature  
 <222> (1)...(761)  
 <223> Xaa is any amino acid

<400> 1791  
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                   20                  25                  30  
 Ser Lys Asn Glu Leu Asn Glu Thr Lys Leu Pro Val Arg Val Val Ala  
                   35                  40                  45  
 Gln Xaa Ala Ala Thr Arg Ser Gly Trp Asp Thr Val Leu Glu Gly Thr  
                   50                  55                  60  
 Glu Phe Lys Thr Thr Leu Ala Gly Ala Asp Ile Gln Ala Gly Val Xaa  
                   65                  70                  75                  80  
 Glu Lys Ala Arg Val Asp Ala Lys Ile Ile Leu Lys Gly Ile Val Asn  
                   85                  90                  95  
 Arg Ile Gln Ser Glu Glu Lys Leu Glu Thr Asn Ser Thr Val Trp Gln  
                   100                  105                  110  
 Lys Gln Ala Gly Arg Gly Ser Thr Ile Glu Thr Leu Lys Leu Pro Ser  
                   115                  120                  125  
 Phe Glu Ser Pro Thr Pro Pro Lys Leu Ser Ala Pro Gly Gly Tyr Ile  
                   130                  135                  140  
 Val Asp Ile Pro Lys Gly Asn Leu Lys Thr Glu Ile Glu Lys Leu Ser  
                   145                  150                  155                  160  
 Lys Gln Pro Glu Tyr Ala Tyr Leu Lys Gln Leu Gln Val Ala Lys Asn  
                   165                  170                  175  
 Ile Asn Trp Asn Gln Val Gln Leu Ala Tyr Asp Arg Trp Asp Tyr Lys  
                   180                  185                  190  
 Gln Glu Gly Leu Thr Glu Ala Gly Ala Ala Ile Ile Ala Leu Ala Val  
                   195                  200                  205  
 Thr Val Val Thr Ser Gly Ala Gly Thr Gly Ala Val Leu Gly Leu Asn  
                   210                  215                  220  
 Gly Ala Xaa Ala Ala Ala Thr Asp Ala Ala Phe Ala Ser Leu Ala Ser  
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Gln	Ala	Ser	Val	Ser	Phe	Ile	Asn	Asn	Lys	Gly	Asp	Val	Gly	Lys	Thr		
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Leu	Lys	Glu	Leu	Gly	Arg	Ser	Ser	Thr	Val	Lys	Asn	Leu	Val	Val	Ala		
			260					265					270				
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Asn	Val	Ser	Asp	Lys	Gln	Trp	Ile	Asn	Asn	Leu	Thr	Val	Asn	Leu	Ala		
	290					295					300						
Asn	Ala	Gly	Ser	Ala	Ala	Leu	Ile	Asn	Thr	Ala	Val	Asn	Gly	Gly	Ser		
305					310					315					320		
Leu	Lys	Asp	Xaa	Leu	Glu	Ala	Asn	Ile	Leu	Ala	Ala	Leu	Val	Asn	Thr		
				325					330					335			
Ala	His	Gly	Glu	Ala	Ala	Ser	Lys	Ile	Lys	Gln	Leu	Asp	Gln	His	Tyr		
			340					345					350				
Ile	Val	His	Lys	Ile	Ala	His	Ala	Ile	Ala	Gly	Cys	Ala	Ala	Ala	Ala		
		355					360					365					
Ala	Asn	Lys	Gly	Lys	Cys	Gln	Asp	Gly	Ala	Ile	Gly	Ala	Ala	Val	Gly		
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Glu	Ile	Val	Gly	Glu	Ala	Leu	Thr	Asn	Gly	Lys	Asn	Pro	Asp	Thr	Leu		
385					390					395					400		
Thr	Ala	Lys	Glu	Arg	Glu	Gln	Ile	Leu	Ala	Tyr	Ser	Lys	Leu	Val	Ala		
			405					410						415			
Gly	Thr	Val	Ser	Gly	Val	Val	Gly	Gly	Asp	Val	Asn	Ala	Ala	Ala	Asn		
			420					425					430				
Ala	Ala	Glu	Val	Ala	Val	Lys	Asn	Asn	Gln	Leu	Ser	Asp	Xaa	Glu	Gly		
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Arg	Glu	Phe	Asp	Asn	Glu	Met	Thr	Ala	Cys	Ala	Lys	Gln	Asn	Xaa	Pro		
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Gln	Leu	Cys	Arg	Lys	Asn	Thr	Val	Lys	Lys	Tyr	Gln	Asn	Val	Ala	Asp		
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Lys	Arg	Leu	Ala	Ala	Ser	Ile	Ala	Ile	Cys	Thr	Asp	Ile	Ser	Arg	Ser		
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Thr	Glu	Cys	Arg	Thr	Ile	Arg	Lys	Gln	His	Leu	Ile	Asp	Ser	Arg	Ser		
			500					505					510				
Leu	His	Ser	Ser	Trp	Glu	Ala	Gly	Leu	Ile	Gly	Lys	Asp	Asp	Glu	Trp		
		515					520					525					
Tyr	Lys	Leu	Phe	Ser	Lys	Ser	Tyr	Thr	Gln	Ala	Asp	Leu	Ala	Leu	Gln		
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Ser Tyr His Leu Asn Thr Ala Ala Lys Ser Trp Leu Gln Ser Gly Asn  
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 Thr Lys Pro Leu Ser Glu Trp Met Ser Asp Gln Gly Tyr Thr Leu Ile  
 565 570 575  
 Ser Gly Val Asn Pro Arg Phe Ile Pro Ile Pro Arg Gly Phe Val Lys  
 580 585 590  
 Gln Asn Thr Pro Ile Thr Asn Val Lys Tyr Pro Glu Gly Ile Ser Phe  
 595 600 605  
 Asp Thr Asn Leu Xaa Arg His Leu Ala Asn Ala Asp Gly Phe Ser Gln  
 610 615 620  
 Glu Gln Gly Ile Lys Gly Ala His Asn Arg Thr Asn Xaa Met Ala Glu  
 625 630 635 640  
 Leu Asn Ser Arg Gly Gly Xaa Val Lys Ser Glu Thr Xaa Thr Asp Ile  
 645 650 655  
 Glu Gly Ile Thr Arg Ile Lys Tyr Glu Ile Pro Thr Leu Asp Arg Thr  
 660 665 670  
 Gly Lys Pro Asp Gly Gly Phe Lys Glu Ile Ser Ser Ile Lys Thr Val  
 675 680 685  
 Tyr Asn Pro Lys Xaa Phe Xaa Asp Asp Lys Ile Leu Gln Met Ala Gln  
 690 695 700  
 Xaa Ala Xaa Ser Gln Gly Tyr Ser Lys Ala Ser Lys Ile Ala Gln Asn  
 705 710 715 720  
 Glu Arg Thr Lys Ser Ile Ser Glu Arg Lys Asn Val Ile Gln Phe Ser  
 725 730 735  
 Glu Thr Phe Asp Gly Ile Lys Phe Arg Xaa Tyr Xaa Asp Val Asn Thr  
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 Gly Arg Ile Thr Asn Ile His Pro Glu  
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<210> 1792

<211> 336

<212> DNA

<213> *Neisseria meningitidis*

<400> 1792

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 tggctgctga tttttctgcc ttgcggtttt tcaacttcgc gcttgagggc ttcggcata 240  
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<210> 1793  
<211> 111  
<212> PRT  
<213> Neisseria meningitidis

<400> 1793  
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Tyr Asp Ala Leu Val Gly Ile Ala Val Leu Gly Thr Phe Val His Pro  
35 40 45  
Thr His Ile Cys Leu Arg Ile Leu Ile Ala Ala Ser Trp Leu Leu Ile  
50 55 60  
Phe Leu Pro Ser Arg Phe Ser Thr Ser Arg Leu Arg Ala Ser Ala Tyr  
65 70 75 80  
Leu Ser Ala Asn Ala Ile Ser Phe Gly Cys Ser Cys Leu Leu Phe Gln  
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Ser Thr Phe Ala Pro Thr Thr Ala Pro Pro Leu Pro Pro Val Ala  
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<210> 1794  
<211> 1716  
<212> DNA  
<213> Neisseria meningitidis

<220>  
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<223> n = A,T,C or G

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gtgggtgatg acaaggtgct ggtacatcgg ggattctcta ctttgatgt ggtgtcgggtg 180  
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gcacatacga cttcacgtat tgatgtggaa ttgggcgcgc gtttggtccg gcatctgctt 300  
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nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn 1020

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gataaaggca ggattgtgga agcgggaaca cagcaggaat tgctggcgaa cgnnaacgga 1680
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<210> 1795
<211> 571
<212> PRT
<213> Neisseria meningitidis

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<220>
<221> misc_feature
<222> (1)...(571)
<223> Xaa is any Amino Acid

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<400> 1795
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Leu Ile Thr Pro Leu Phe Phe Gln Val Val Met Asp Lys Val Leu Val
      35                                40                        45

His Arg Gly Phe Ser Thr Leu Asp Val Val Ser Val Ala Leu Leu Val
      50                                55                        60

Val Ser Leu Phe Glu Ile Val Leu Gly Gly Leu Arg Thr Tyr Leu Phe
      65                                70                        75                        80

Ala His Thr Thr Ser Arg Ile Asp Val Glu Leu Gly Ala Arg Leu Phe
      85                                90                        95

Arg His Leu Leu Ser Leu Pro Leu Ser Tyr Phe Glu His Arg Arg Val
      100                               105                       110

Gly Asp Thr Val Ala Arg Val Arg Glu Leu Glu Gln Ile Arg Asn Phe
      115                               120                       125

Leu Thr Gly Gln Ala Leu Thr Ser Val Leu Asp Leu Ala Phe Ser Phe
      130                               135                       140

Ile Phe Leu Ala Val Met Trp Tyr Tyr Ser Ser Thr Leu Thr Trp Val
      145                               150                       155                       160

Val Leu Ala Ser Leu Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa

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[illegible]

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    485                                      490                                      495  
 Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa  
    500                                      505                                      510  
 Xaa Xaa Ile Cys Ala Asn Arg Thr Val Leu Ile Ile Ala His Arg Leu  
    515                                      520                                      525  
 Ser Thr Val Lys Thr Ala His Arg Ile Ile Ala Met Asp Lys Gly Arg  
    530                                      535                                      540  
 Ile Val Glu Ala Gly Thr Gln Gln Glu Leu Leu Ala Asn Xaa Asn Gly  
 545                                      550                                      555                                      560  
 Tyr Tyr Arg Tyr Leu Tyr Asp Leu Gln Asn Gly  
    565                                      570

<210> 1796  
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 <212> DNA  
 <213> *Neisseria meningitidis*

<400> 1796  
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taccgctatc tgtatgattt acagaacggg tag 2133

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<210> 1797

<211> 710

<212> PRT

<213> Neisseria meningitidis

<400> 1797

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      20                      25                      30

Glu Phe Cys Thr Ser Ala Gln Ser Asp Leu Asn Glu Thr Gln Trp Leu
      35                      40                      45

Leu Ala Ala Lys Ser Leu Gly Leu Lys Ala Lys Val Val Arg Gln Pro
      50                      55                      60

Ile Lys Arg Leu Ala Met Ala Thr Leu Pro Ala Leu Val Trp Cys Asp
      65                      70                      75                      80

Asp Gly Asn His Phe Ile Leu Ala Lys Thr Asp Gly Glu Gly Glu His
      85                      90                      95

Ala Gln Phe Leu Ile Gln Asp Leu Val Thr Asn Lys Ser Ala Val Leu
      100                     105                     110

Ser Phe Ala Glu Phe Ser Asn Arg Tyr Ser Gly Lys Leu Ile Leu Val
      115                     120                     125

Ala Ser Arg Ala Ser Val Leu Gly Ser Leu Ala Lys Phe Asp Phe Thr
      130                     135                     140

Trp Phe Ile Pro Ala Val Ile Lys Tyr Arg Arg Leu Phe Phe Glu Val
      145                     150                     155                     160

Leu Val Val Ser Val Val Leu Gln Leu Phe Ala Leu Ile Thr Pro Leu
      165                     170                     175

Phe Phe Gln Val Val Met Asp Lys Val Leu Val His Arg Gly Phe Ser
      180                     185                     190

Thr Leu Asp Val Val Ser Val Ala Leu Leu Val Val Ser Leu Phe Glu
      195                     200                     205

Ile Val Leu Gly Gly Leu Arg Thr Tyr Leu Phe Ala His Thr Thr Ser
      210                     215                     220

Arg Ile Asp Val Glu Leu Gly Ala Arg Leu Phe Arg His Leu Leu Ser

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225					230						235				240
Leu	Pro	Leu	Ser	Tyr	Phe	Glu	His	Arg	Arg	Val	Gly	Asp	Thr	Val	Ala
				245					250					255	
Arg	Val	Arg	Glu	Leu	Glu	Gln	Ile	Arg	Asn	Phe	Leu	Thr	Gly	Gln	Ala
			260					265					270		
Leu	Thr	Ser	Val	Leu	Asp	Leu	Ala	Phe	Ser	Phe	Ile	Phe	Leu	Ala	Val
		275					280					285			
Met	Trp	Tyr	Tyr	Ser	Ser	Thr	Leu	Thr	Trp	Val	Val	Leu	Ala	Ser	Leu
	290					295					300				
Pro	Ala	Tyr	Ala	Phe	Trp	Ser	Ala	Phe	Ile	Ser	Pro	Ile	Leu	Arg	Thr
305					310					315					320
Arg	Leu	Asn	Asp	Lys	Phe	Ala	Arg	Asn	Ala	Asp	Asn	Gln	Ser	Phe	Leu
				325					330					335	
Val	Glu	Ser	Ile	Thr	Ala	Val	Gly	Thr	Val	Lys	Ala	Met	Ala	Val	Glu
			340					345					350		
Pro	Gln	Met	Thr	Gln	Arg	Trp	Asp	Asn	Gln	Leu	Ala	Ala	Tyr	Val	Ala
		355					360					365			
Ser	Gly	Phe	Arg	Val	Thr	Lys	Leu	Ala	Val	Val	Gly	Gln	Gln	Gly	Val
	370					375					380				
Gln	Leu	Ile	Gln	Lys	Leu	Val	Thr	Val	Ala	Thr	Leu	Trp	Ile	Gly	Ala
385				390						395					400
Arg	Leu	Val	Ile	Glu	Ser	Lys	Leu	Thr	Val	Gly	Gln	Leu	Ile	Ala	Phe
				405					410					415	
Asn	Met	Leu	Ser	Gly	Gln	Val	Ala	Ala	Pro	Val	Ile	Arg	Leu	Ala	Gln
			420					425					430		
Leu	Trp	Gln	Asp	Phe	Gln	Gln	Val	Gly	Ile	Ser	Val	Ala	Arg	Leu	Gly
		435					440					445			
Asp	Ile	Leu	Asn	Ala	Pro	Thr	Glu	Asn	Ala	Ser	Ser	His	Leu	Ala	Leu
	450					455					460				
Pro	Asp	Ile	Arg	Gly	Glu	Ile	Thr	Phe	Glu	His	Val	Asp	Phe	Arg	Tyr
465					470					475					480
Lys	Ala	Asp	Gly	Arg	Leu	Ile	Leu	Gln	Asp	Leu	Asn	Leu	Arg	Ile	Arg
				485					490					495	
Ala	Gly	Glu	Val	Leu	Gly	Ile	Val	Gly	Arg	Ser	Gly	Ser	Gly	Lys	Ser
			500					505					510		
Thr	Leu	Thr	Lys	Leu	Val	Gln	Arg	Leu	Tyr	Val	Pro	Glu	Gln	Gly	Arg
		515					520					525			
Val	Leu	Val	Asp	Gly	Asn	Asp	Leu	Ala	Leu	Ala	Ala	Pro	Ala	Trp	Leu

530		535		540
Arg Arg Gln Val Gly	Val Val Leu Gln Glu Asn	Val Leu Leu Asn Arg		
545	550	555	560	
Ser Ile Arg Asp Asn	Ile Ala Leu Thr Asp Thr	Gly Met Pro Leu Glu		
	565	570	575	
Arg Ile Ile Glu Ala	Ala Lys Leu Ala Gly Ala His	Glu Phe Ile Met		
	580	585	590	
Glu Leu Pro Glu Gly	Tyr Gly Thr Val Val Gly Glu	Gln Gly Ala Gly		
	595	600	605	
Leu Ser Gly Gly Gln	Arg Gln Arg Ile Ala Ile	Ala Arg Ala Leu Ile		
	610	615	620	
Thr Asn Pro Arg Ile	Leu Ile Phe Asp Glu Ala Thr	Ser Ala Leu Asp		
	625	630	635	640
Tyr Glu Ser Glu Arg	Ala Ile Met Gln Asn Met Gln	Ala Ile Cys Ala		
	645	650	655	
Asn Arg Thr Val Leu	Ile Ile Ala His Arg Leu Ser	Thr Val Lys Thr		
	660	665	670	
Ala His Arg Ile Ile	Ala Met Asp Lys Gly Arg Ile	Val Glu Ala Gly		
	675	680	685	
Thr Gln Gln Glu Leu	Leu Ala Lys Pro Asn Gly Tyr	Tyr Arg Tyr Leu		
	690	695	700	
Tyr Asp Leu Gln Asn	Gly			
705	710			

<210> 1798  
 <211> 2133  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1798  
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ctgattatcg  cccaccgtct  gtccactgtt  aaaacggcac  accggatcat  tgccatggat  2040
aaaggcagga  ttgtggaagc  gggaacacag  caggaattgc  tggcgaagcc  gaacggatat  2100
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2133

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<210> 1799

<211> 710

<212> PRT

<213> *Neisseria meningitidis*

<400> 1799

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Glu Phe Cys Thr Ser Ala Gln Ser Asp Leu Asn Glu Thr Gln Trp Leu
      35                        40                        45

Leu Ala Ala Lys Ser Leu Gly Leu Lys Ala Lys Val Val Arg Gln Pro
      50                        55                        60

Ile Lys Arg Leu Ala Met Ala Thr Leu Pro Ala Leu Val Trp Cys Asp
      65                        70                        75                        80

Asp Gly Asn His Phe Ile Leu Ala Lys Thr Asp Gly Gly Gly Glu His
      85                        90                        95

Ala Gln Tyr Leu Ile Gln Asp Leu Thr Thr Asn Lys Ser Ala Val Leu
      100                       105                       110

Ser Phe Ala Glu Phe Ser Asn Arg Tyr Ser Gly Lys Leu Ile Leu Val
      115                       120                       125

Ala Ser Arg Ala Ser Val Leu Gly Ser Leu Ala Lys Phe Asp Phe Thr
      130                       135                       140

Trp Phe Ile Pro Ala Val Ile Lys Tyr Arg Arg Leu Phe Phe Glu Val
      145                       150                       155                       160

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Leu	Val	Val	Ser	Val	Val	Leu	Gln	Leu	Phe	Ala	Leu	Ile	Thr	Pro	Leu	
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Phe	Phe	Gln	Val	Val	Met	Asp	Lys	Val	Leu	Val	His	Arg	Gly	Phe	Ser	
			180					185					190			
Thr	Leu	Asp	Val	Val	Ser	Val	Ala	Leu	Leu	Val	Val	Ser	Leu	Phe	Glu	
		195					200					205				
Ile	Val	Leu	Gly	Gly	Leu	Arg	Thr	Tyr	Leu	Phe	Ala	His	Thr	Thr	Ser	
	210					215					220					
Arg	Ile	Asp	Val	Glu	Leu	Gly	Ala	Arg	Leu	Phe	Arg	His	Leu	Leu	Ser	
225					230					235					240	
Leu	Pro	Leu	Ser	Tyr	Phe	Glu	His	Arg	Arg	Val	Gly	Asp	Thr	Val	Ala	
				245					250					255		
Arg	Val	Arg	Glu	Leu	Glu	Gln	Ile	Arg	Asn	Phe	Leu	Thr	Gly	Gln	Ala	
			260					265					270			
Leu	Thr	Ser	Val	Leu	Asp	Leu	Ala	Phe	Ser	Phe	Ile	Phe	Leu	Ala	Val	
		275					280					285				
Met	Trp	Tyr	Tyr	Ser	Ser	Thr	Leu	Thr	Trp	Val	Val	Leu	Ala	Ser	Leu	
	290					295					300					
Pro	Ala	Tyr	Ala	Phe	Trp	Ser	Ala	Phe	Ile	Ser	Pro	Ile	Leu	Arg	Thr	
305					310					315					320	
Arg	Leu	Asn	Asp	Lys	Phe	Ala	Arg	Asn	Ala	Asp	Asn	Gln	Ser	Phe	Leu	
				325					330					335		
Val	Glu	Ser	Ile	Thr	Ala	Val	Gly	Thr	Val	Lys	Ala	Met	Ala	Val	Glu	
			340					345					350			
Pro	Gln	Met	Thr	Gln	Arg	Trp	Asp	Asn	Gln	Leu	Ala	Ala	Tyr	Val	Ala	
		355					360					365				
Ser	Gly	Phe	Arg	Val	Thr	Lys	Leu	Ala	Val	Val	Gly	Gln	Gln	Gly	Val	
	370					375					380					
Gln	Leu	Ile	Gln	Lys	Leu	Val	Thr	Val	Ala	Thr	Leu	Trp	Ile	Gly	Ala	
385					390					395					400	
Arg	Leu	Val	Ile	Glu	Ser	Lys	Leu	Thr	Val	Gly	Gln	Leu	Ile	Ala	Phe	
				405					410					415		
Asn	Met	Leu	Ser	Gly	Gln	Val	Ala	Ala	Pro	Val	Ile	Arg	Leu	Ala	Gln	
			420					425					430			
Leu	Trp	Gln	Asp	Phe	Gln	Gln	Val	Gly	Ile	Ser	Val	Ala	Arg	Leu	Gly	
		435					440					445				
Asp	Ile	Leu	Asn	Ala	Pro	Thr	Glu	Asn	Ala	Ser	Ser	His	Leu	Ala	Leu	
	450					455					460					

Pro Asp Ile Arg Gly Glu Ile Thr Phe Glu His Val Asp Phe Arg Tyr  
 465 470 475 480  
 Lys Ala Asp Gly Arg Leu Ile Leu Gln Asp Leu Asn Leu Arg Ile Arg  
 485 490 495  
 Ala Gly Glu Val Leu Gly Ile Val Gly Arg Ser Gly Ser Gly Lys Ser  
 500 505 510  
 Thr Leu Thr Lys Leu Val Gln Arg Leu Tyr Val Pro Ala Gln Gly Arg  
 515 520 525  
 Val Leu Val Asp Gly Asn Asp Leu Ala Leu Ala Ala Pro Ala Trp Leu  
 530 535 540  
 Arg Arg Gln Val Gly Val Val Leu Gln Glu Asn Val Leu Leu Asn Arg  
 545 550 555 560  
 Ser Ile Arg Asp Asn Ile Ala Leu Thr Asp Thr Gly Met Pro Leu Glu  
 565 570 575  
 Arg Ile Ile Glu Ala Ala Lys Leu Ala Gly Ala His Glu Phe Ile Met  
 580 585 590  
 Glu Leu Pro Glu Gly Tyr Gly Thr Val Val Gly Glu Gln Gly Ala Gly  
 595 600 605  
 Leu Ser Gly Gly Gln Arg Gln Arg Ile Ala Ile Ala Arg Ala Leu Ile  
 610 615 620  
 Thr Asn Pro Arg Ile Leu Ile Phe Asp Glu Ala Thr Ser Ala Leu Asp  
 625 630 635 640  
 Tyr Glu Ser Glu Arg Ala Ile Met Gln Asn Met Gln Ala Ile Cys Ala  
 645 650 655  
 Asn Arg Thr Val Leu Ile Ile Ala His Arg Leu Ser Thr Val Lys Thr  
 660 665 670  
 Ala His Arg Ile Ile Ala Met Asp Lys Gly Arg Ile Val Glu Ala Gly  
 675 680 685  
 Thr Gln Gln Glu Leu Leu Ala Lys Pro Asn Gly Tyr Tyr Arg Tyr Leu  
 690 695 700  
 Tyr Asp Leu Gln Asn Gly  
 705 710

<210> 1800

<211> 186

<212> DNA

<213> Neisseria meningitidis

<400> 1800

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ttagccgtcg ccgacaaaca ggcagagatt gacgggttga acgccc aaak sgacgccgaa 180  
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<210> 1801  
<211> 62  
<212> PRT  
<213> Neisseria meningitidis

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<221> misc\_feature  
<222> (1)...(62)  
<223> Xaa is any Amino Acid

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Glu Asn Ser Leu Thr Ala Met Arg Leu Ala Val Ala Asp Lys Gln Ala  
35 40 45  
Glu Ile Asp Gly Leu Asn Ala Gln Xaa Asp Ala Glu Ile Arg  
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<210> 1802  
<211> 261  
<212> DNA  
<213> Neisseria meningitidis

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ttagccgtcg ccgacaaaca ggcagagatt gacgggttga acgccc aaat cgacgccgaa 180  
atcagacaac gcgaagccga agaattgaaa gactaccgat ggatacacgg cgacgccgaa 240  
gtgccggagc tggaaaaatg a 261

<210> 1803  
<211> 86  
<212> PRT  
<213> Neisseria meningitidis

<400> 1803  
Met Lys Tyr Leu Ile Arg Thr Ala Leu Leu Ala Val Ala Ala Ala Gly  
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Ile Tyr Ala Cys Gln Pro Gln Ser Glu Ala Ala Val Gln Val Lys Ala  
20 25 30  
Glu Asn Ser Leu Thr Ala Met Arg Leu Ala Val Ala Asp Lys Gln Ala  
35 40 45

Glu Ile Asp Gly Leu Asn Ala Gln Ile Asp Ala Glu Ile Arg Gln Arg  
50 55 60

Glu Ala Glu Glu Leu Lys Asp Tyr Arg Trp Ile His Gly Asp Ala Glu  
65 70 75 80

Val Pro Glu Leu Glu Lys  
85

<210> 1804  
<211> 279  
<212> DNA  
<213> Neisseria meningitidis

<400> 1804  
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aatcccgctc tccatgcac cagttgcgta tcgcgttsgg caatacggaa taaaatctgc 120  
tgtttctgctt tggctaaatt tgccaaattg tttattgttt ctttaggagc agcttgctta 180  
gccgccttcg ctttcgacaa cgccccaca ggcgcttccc aagcgttgcc taccgttacc 240  
gcacccgtgg cgattcccgc gcccgcttcg gcagcctga 279

<210> 1805  
<211> 92  
<212> PRT  
<213> Neisseria meningitidis

<220>  
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<222> (1)...(92)  
<223> Xaa is any Amino Acid

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Thr Leu Leu Leu Asn Pro Val Phe His Ala Ser Ser Cys Val Ser Arg  
20 25 30

Xaa Ala Ile Arg Asn Lys Ile Cys Cys Ser Ala Leu Ala Lys Phe Ala  
35 40 45

Lys Leu Phe Ile Val Ser Leu Gly Ala Ala Cys Leu Ala Ala Phe Ala  
50 55 60

Phe Asp Asn Ala Pro Thr Gly Ala Ser Gln Ala Leu Pro Thr Val Thr  
65 70 75 80

Ala Pro Val Ala Ile Pro Ala Pro Ala Ser Ala Ala  
85 90

<210> 1806  
<211> 312  
<212> DNA  
<213> Neisseria meningitidis

<400> 1806  
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gtatcgcgtt gggcaatacg gaataaaatc tgctgttctg ctttggctaa atttgccaaa 180  
ttgtttattg tttcttttagg agcagcttgc ttagccgcct tcgctttcga caacgcccc 240  
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tcggcagcct ga 312

<210> 1807  
<211> 103  
<212> PRT  
<213> Neisseria meningitidis

<400> 1807  
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Leu Leu Ala Ser Ser Lys Pro Ala Pro Phe Leu Thr Leu Leu Leu Asn  
20 25 30  
Pro Val Phe His Ala Ser Ser Cys Val Ser Arg Trp Ala Ile Arg Asn  
35 40 45  
Lys Ile Cys Cys Ser Ala Leu Ala Lys Phe Ala Lys Leu Phe Ile Val  
50 55 60  
Ser Leu Gly Ala Ala Cys Leu Ala Ala Phe Ala Phe Asp Asn Ala Pro  
65 70 75 80  
Thr Gly Ala Ser Gln Ala Leu Pro Thr Val Thr Ala Pro Val Ala Ile  
85 90 95  
Pro Ala Pro Ala Ser Ala Ala  
100

<210> 1808  
<211> 255  
<212> DNA  
<213> Neisseria meningitidis

<400> 1808  
atgttcagta ttttaaagt gtttcttcat tgtattctgg cttgtgtagt ctctggtgag 60  
acgcctacta tatttggtat ccttgctctt ttttacttat tgtatctttc ttatcttgct 120  
gtttttaaga ttttcttttc ttttttctta gacagagttt cactccggtc tcccaggctg 180  
gagtgcaaat ggcatagccc tttggctcac tggctcacgg ccacttctgc tattctgcgc 240  
cctcagcctc caggg 255

<210> 1809  
<211> 85  
<212> PRT  
<213> Neisseria meningitidis

<400> 1809



Met Phe Ser Ile Leu Asn Val Phe Leu His Cys Ile Leu Ala Cys Val  
5 10 15  
Val Ser Gly Glu Thr Pro Thr Ile Phe Gly Ile Leu Ala Leu Phe Tyr  
20 25 30  
Leu Leu Tyr Leu Ser Tyr Leu Ala Val Phe Lys Ile Phe Phe Ser Phe  
35 40 45  
Phe Leu Asp Arg Val Ser Leu Arg Ser Pro Arg Leu Glu Cys Lys Trp  
50 55 60  
His Asp Pro Leu Ala His Trp Leu Thr Ala Thr Ser Ala Ile Leu Pro  
65 70 75 80  
Pro Gln Pro Pro Gly  
85

<210> 1810  
<211> 237  
<212> DNA  
<213> Neisseria meningitidis

<400> 1810  
gtgcggacgt ggttggtttt ttggttgcag cgtttgaaat acccgttggt gctttggatt 60  
gcggatatgt tgctgtaccg gttggtgggc ggcgcggaat tcgaatgcgg ccggtgccct 120  
gtgccgccga tgacggattg gcagcatttt ttgccggcga tgggaacggt gtcggcttgg 180  
gtggcgggtga tttgggcata cctgatgatt gaaagtgaat aaaacggaag atattga 237

<210> 1811  
<211> 78  
<212> PRT  
<213> Neisseria meningitidis

<400> 1811  
Val Arg Thr Trp Leu Val Phe Trp Leu Gln Arg Leu Lys Tyr Pro Leu  
5 10 15  
Leu Leu Trp Ile Ala Asp Met Leu Leu Tyr Arg Leu Leu Gly Gly Ala  
20 25 30  
Glu Ile Glu Cys Gly Arg Cys Pro Val Pro Pro Met Thr Asp Trp Gln  
35 40 45  
His Phe Leu Pro Ala Met Gly Thr Val Ser Ala Trp Val Ala Val Ile  
50 55 60  
Trp Ala Tyr Leu Met Ile Glu Ser Glu Lys Asn Gly Arg Tyr  
65 70 75

<210> 1812  
<211> 237  
<212> DNA

<213> Neisseria meningitidis

<400> 1812

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gtgcggacgt ggttggtttt ttggttgacg cgtttgaaat acccgttggt gctttgtatt 60
gcggatatgc tgctgtaccg gttgttgggc ggcgcggaaa tcgaatgcgg ccgttgccct 120
gtaccgccga tgacggattg gcagcatttt ttgccgacga tgggaacggt ggcggcttgg 180
gtggcgggtga tttgggcata cctgatgatt gaaagtgaat aaaacggaag atattga 237
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<210> 1813

<211> 78

<212> PRT

<213> Neisseria meningitidis

<400> 1813

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Val Arg Thr Trp Leu Val Phe Trp Leu Gln Arg Leu Lys Tyr Pro Leu
      5                      10                      15

Leu Leu Cys Ile Ala Asp Met Leu Leu Tyr Arg Leu Leu Gly Gly Ala
      20                      25                      30

Glu Ile Glu Cys Gly Arg Cys Pro Val Pro Pro Met Thr Asp Trp Gln
      35                      40                      45

His Phe Leu Pro Thr Met Gly Thr Val Ala Ala Trp Val Ala Val Ile
      50                      55                      60

Trp Ala Tyr Leu Met Ile Glu Ser Glu Lys Asn Gly Arg Tyr
      65                      70                      75
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<210> 1814

<211> 660

<212> DNA

<213> Neisseria meningitidis

<400> 1814

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atgtttcaaa attttgattt gggcgtgttc ctgcttgccg tcttccccgt gctgccctcc 60
attaccgtct cgcacgtggc gcgcggctat acggcgcgct actggggaga caacactgcc 120
gaacaatacg gcaggctgac actgaacccc ctgccccata tcgatttggt cggcacaatc 180
atcgtaacgc tgcttacttt gatgttcacg cccttcctgt tcggctgggc gcgtccgatt 240
cctatcgatt cgcgcaactt ccgcaacccg cgccttgccg ggcgttgctg tgccgcgtcc 300
ggcccgcgtg cgaatctagc gatggctgtw ctgtggggcg tggttttggt gctgactccg 360
tatgtcggcg gggcgatatc gatgccgttg gctcaaattg caaactacgg tattctgac 420
aatgcgattc tgttcgcgct caacatcatc cccatcctgc cttgggacgg cggcattttc 480
atcgacacct tctgtcgggc gaaatattcg caagcgttcc gcaaaatcga accttatggg 540
acgtggatta tctactgct gatgctgacc sgggttttgg gtgcgtttat wgcaccgatt 600
stgcggmtgc gtgattgcrt ttgtgcagat gtwcgtctga ctggctttca gacggcataa 660
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<210> 1815

<211> 219

<212> PRT

<213> Neisseria meningitidis

<220>

<221> misc\_feature  
<222> (1)...(219)  
<223> Xaa is any Amino Acid

<400> 1815

Met	Phe	Gln	Asn	Phe	Asp	Leu	Gly	Val	Phe	Leu	Leu	Ala	Val	Leu	Pro	
			5						10						15	
Val	Leu	Pro	Ser	Ile	Thr	Val	Ser	His	Val	Ala	Arg	Gly	Tyr	Thr	Ala	
			20					25					30			
Arg	Tyr	Trp	Gly	Asp	Asn	Thr	Ala	Glu	Gln	Tyr	Gly	Arg	Leu	Thr	Leu	
		35					40					45				
Asn	Pro	Leu	Pro	His	Ile	Asp	Leu	Val	Gly	Thr	Ile	Ile	Val	Pro	Leu	
		50				55					60					
Leu	Thr	Leu	Met	Phe	Thr	Pro	Phe	Leu	Phe	Gly	Trp	Ala	Arg	Pro	Ile	
65					70					75					80	
Pro	Ile	Asp	Ser	Arg	Asn	Phe	Arg	Asn	Pro	Arg	Leu	Ala	Trp	Arg	Cys	
				85					90					95		
Val	Ala	Ala	Ser	Gly	Pro	Leu	Ser	Asn	Leu	Ala	Met	Ala	Val	Leu	Trp	
			100					105					110			
Gly	Val	Val	Leu	Val	Leu	Thr	Pro	Tyr	Val	Gly	Gly	Ala	Tyr	Gln	Met	
		115					120					125				
Pro	Leu	Ala	Gln	Met	Ala	Asn	Tyr	Gly	Ile	Leu	Ile	Asn	Ala	Ile	Leu	
		130				135						140				
Phe	Ala	Leu	Asn	Ile	Ile	Pro	Ile	Leu	Pro	Trp	Asp	Gly	Gly	Ile	Phe	
145					150					155					160	
Ile	Asp	Thr	Phe	Leu	Ser	Ala	Lys	Tyr	Ser	Gln	Ala	Phe	Arg	Lys	Ile	
				165					170					175		
Glu	Pro	Tyr	Gly	Thr	Trp	Ile	Ile	Leu	Leu	Leu	Met	Leu	Thr	Xaa	Val	
			180					185					190			
Leu	Gly	Ala	Phe	Ile	Ala	Pro	Ile	Xaa	Arg	Xaa	Arg	Asp	Cys	Xaa	Cys	
		195					200					205				
Ala	Asp	Val	Arg	Leu	Thr	Gly	Phe	Gln	Thr	Ala						
		210				215										

<210> 1816  
<211> 639  
<212> DNA  
<213> Neisseria meningitidis

<400> 1816

atgtttcaaaa attttgattt gggcgtgttt ctgcttgccg tcttgcccgt gctgctctcc 60  
attaccgtca gggaggtggc ggcggctat acggcgcgct actggggaga caacactgcc 120  
gaacaatag gcaggctgac actgaacccc ctgcccata tcgatttggt cggcacaatc 180

atcgtagcgc	tgttactttt	gatgttcacg	cccttcctgt	tgggctgggc	gcgtccgatt	240
cctatcgatt	cgcgcaactt	cgcgaacccg	cgccttgcc	ggcggtgcgt	tgccgcgtcc	300
ggcccgcgtg	cgaatctagc	gatggcgtgt	ctgtggggcg	tggttttggt	gctgactccg	360
tatgtcggcg	gggcgtatca	gatgccgttg	gctcaaatgg	caaactacgg	tattctgata	420
aatgcgattc	tgttcgcgct	caacatcatc	cccatacctg	cttgggacgg	cggcattttc	480
atcgacacct	tcctgtcggc	gaaatattcg	caagcgttcc	gcaaaatcga	accttatggg	540
acgtggatta	tcctactgct	gatgctgacc	ggggttttgg	gtgcgtttat	tgacccgatt	600
gtgcggcgtg	tgattgcgtt	tgtgcagatg	ttcgtctga			639

<400> 1817

<210> 1818  
 <211> 558  
 <212> DNA  
 <213> Neisseria meningitidis

<220>  
 <221> misc\_feature  
 <222> (1)...(558)  
 <223> n = A,T,C or G

<400> 1818  
 cgcggtctata cagcgcgcta ctgggggtgac aacactgccg aacaatacgg cagggtgaca 60  
 ctgaaccccc tgccccatat cgatttggtc ggacacaatca tcgtaccgct gcttactttg 120  
 atgttttacgc ccttcctggt cggtcgggcg cgtccgattc ctatcgattc gcgcaacttc 180  
 cgcaaccgcg gccttgccctg gcgttgccgt gccgcgtccg gcccgctgtc gaatctggcg 240  
 atggctgttc tgtggggcgt ggttttggtg ctgactccgt atgtcgggtg ggcgtatcag 300  
 atgccgttgg cncaaatggc aaactacnnn attctgatca atgcgattct gtncgcgctc 360  
 aacatcatcc ccattcctgcc ttgggacggc ggcatatttc tcgacacctt cctgtcggcn 420  
 aaatantcgc aagcgttccg caaatcga ccttatggga cgtggattat ccngctgctt 480  
 atgctgaccg gggttttggg tgcgtntatt gcaccgattg tgcagctggt gattgcgttt 540  
 gtgcagatgt tcgtctga 558

<210> 1819  
 <211> 185  
 <212> PRT  
 <213> Neisseria meningitidis

<220>  
 <221> misc\_feature  
 <222> (1)...(185)  
 <223> Xaa is any Amino Acid

<400> 1819  
 Arg Gly Tyr Thr Ala Arg Tyr Trp Gly Asp Asn Thr Ala Glu Gln Tyr  
 5 10 15  
 Gly Arg Leu Thr Leu Asn Pro Leu Pro His Ile Asp Leu Val Gly Thr  
 20 25 30  
 Ile Ile Val Pro Leu Leu Thr Leu Met Phe Thr Pro Phe Leu Phe Gly  
 35 40 45  
 Trp Ala Arg Pro Ile Pro Ile Asp Ser Arg Asn Phe Arg Asn Pro Arg  
 50 55 60  
 Leu Ala Trp Arg Cys Val Ala Ala Ser Gly Pro Leu Ser Asn Leu Ala  
 65 70 75 80  
 Met Ala Val Leu Trp Gly Val Val Leu Val Leu Thr Pro Tyr Val Gly  
 85 90 95  
 Gly Ala Tyr Gln Met Pro Leu Ala Gln Met Ala Asn Tyr Xaa Ile Leu  
 100 105 110

Ile Asn Ala Ile Leu Xaa Ala Leu Asn Ile Ile Pro Ile Leu Pro Trp  
115 120 125

Asp Gly Gly Ile Phe Ile Asp Thr Phe Leu Ser Ala Lys Xaa Ser Gln  
130 135 140

Ala Phe Arg Lys Ile Glu Pro Tyr Gly Thr Trp Ile Ile Xaa Leu Leu  
145 150 155 160

Met Leu Thr Gly Val Leu Gly Ala Xaa Ile Ala Pro Ile Val Gln Leu  
165 170 175

Val Ile Ala Phe Val Gln Met Phe Val  
180 185

<210> 1820  
<211> 498  
<212> DNA  
<213> Neisseria meningitidis

<400> 1820  
atgaacctga tttcacgtta catcatccgt caaatggcgg ttatggcggt ttacgcgctc 60  
cttgccttcc tcgctttgta cagctttttt gaaatcctgt acgaaaccgg caacctcggc 120  
aaaggcagtt acggcatatg ggaaatgctg ggctacaccg ccctcaaaat gcccgccgcg 180  
gcctacgaac tgattcccct cgcgcgcctt atcggcggac tggctcctct cagccagctt 240  
gccgccggca gcgaactgac cgtcatcaaa gccagcggca tgagcaccaa aaagctgctg 300  
ttgattctgt cgcagttcgg ttttattttt gctattgcca ccgtcgcgct cggcgaatgg 360  
gttgcgccca cactgagcca aaaagccgaa aacatcaaag ccgccgccat caacggcaaa 420  
atcagcaccg gcaataccgg cctttggctg aaagaaaaaa acagcgtgat caatgtgcgc 480  
gaaatgttgc ccgaccat 498

<210> 1821  
<211> 166  
<212> PRT  
<213> Neisseria meningitidis

<400> 1821  
Met Asn Leu Ile Ser Arg Tyr Ile Ile Arg Gln Met Ala Val Met Ala  
5 10 15

Val Tyr Ala Leu Leu Ala Phe Leu Ala Leu Tyr Ser Phe Phe Glu Ile  
20 25 30

Leu Tyr Glu Thr Gly Asn Leu Gly Lys Gly Ser Tyr Gly Ile Trp Glu  
35 40 45

Met Leu Gly Tyr Thr Ala Leu Lys Met Pro Ala Arg Ala Tyr Glu Leu  
50 55 60

Ile Pro Leu Ala Val Leu Ile Gly Gly Leu Val Ser Leu Ser Gln Leu  
65 70 75 80

Ala Ala Gly Ser Glu Leu Thr Val Ile Lys Ala Ser Gly Met Ser Thr  
85 90 95

Lys Lys Leu Leu Leu Ile Leu Ser Gln Phe Gly Phe Ile Phe Ala Ile  
 100 105 110  
 Ala Thr Val Ala Leu Gly Glu Trp Val Ala Pro Thr Leu Ser Gln Lys  
 115 120 125  
 Ala Glu Asn Ile Lys Ala Ala Ala Ile Asn Gly Lys Ile Ser Thr Gly  
 130 135 140  
 Asn Thr Gly Leu Trp Leu Lys Glu Lys Asn Ser Val Ile Asn Val Arg  
 145 150 155 160  
 Glu Met Leu Pro Asp His  
 165

<210> 1822  
 <211> 980  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1822  
 atgaacctga tttcacgtta catcatccgt caaatggcgg ttatggcggt ttacgcgctc 60  
 cttgccttcc tcgctttgta cagctttttt gaaatcctgt acgaaaccgg caacctcggc 120  
 aaaggcagtt acggcatatg ggaaatgctg ggctacaccg ccctcaaaat gcccgcgccg 180  
 gcctacgaac tgattcccct cgcgcgtcct atcggcggac tggctcctct cagccagctt 240  
 gccgcgcgga gcgaactgac cgtcatcaaa gccagcggca tgagcaccaa aaagctgctg 300  
 ttgattctgt cgcagttcgg ttttattttt gctattgcca ccgtcgcgct cggcgaatgg 360  
 gttgcgcccc cactgagcca aaaagccgaa aacatcaaag ccgcccgcac caacggcaaa 420  
 atcagcaccg gcaataccgg cttttggctg aaagaaaaaa acagcrtkat caatgtgcgc 480  
 gaaatggtgc ccgaccatac gcttttgggc atcaaaattt gggcgcgcaa cgataaaaac 540  
 gaattggcag aggcagtgga agccgattcc gccgttttga acagcgacgg cagttggcag 600  
 ttgaaaaaca tccgcccag cagccttggc gaagacaaag tcgaggtctc tattgcggtc 660  
 gaagaaaact ggccgatttc cgtcaaacgc aacctgatgg acgtattgct cgtcaaacc 720  
 gaccaaatgt ccgtcggcga actgaccacc tacatccgcc acctccaaaa caacagccaa 780  
 aacacccgaa tctacgccat cgcattggtg cgcaaattgg tttacccgc cgcagcctgg 840  
 gtgatggcgc tcgtcgcctt tgcctttacc ccgcaaacca cccgccacgg caatatgggc 900  
 ttaaaactct tcggcggcat ctgtstcgga ttgctgttcc accttgccgg acggctcttt 960  
 gggtttacca gccaaactcg 980

<210> 1823  
 <211> 326  
 <212> PRT  
 <213> Neisseria meningitidis

<220>  
 <221> misc\_feature  
 <222> (1)...(326)  
 <223> Xaa is any Amino Acid

<400> 1823  
 Met Asn Leu Ile Ser Arg Tyr Ile Ile Arg Gln Met Ala Val Met Ala  
 5 10 15  
 Val Tyr Ala Leu Leu Ala Phe Leu Ala Leu Tyr Ser Phe Phe Glu Ile  
 20 25 30

[illegible]



<210> 1824  
 <211> 1071  
 <212> DNA  
 <213> Neisseria meningitidis

<220>  
 <221> misc\_feature  
 <222> (1)...(1076)  
 <223> n = A,T,C or G

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<400> 1824
atgaacctga tttcacgtta catcatccgt caaatggcgg ttatggcggt ttacgcgctc 60
cttgcccttc tcgctttgta cagctttttt gaaatcctgt acgaaaccgg caacctcggc 120
aaaggcagtt acggcatatg ggaaatgntg ggntacaccg ccctcaaaat gnccgcccgc 180
gcctacgaac tgatgcccct cgcgcgcctt atcggcggac tggctctctn cagccagctt 240
gccgcgggca gcgaactgan cgtcatcaaa gccagcggca tgagcaccaa aaagctgctg 300
ttgattctgt cgcagttcgg ttttattttt gctattgcca ccgtcgcgct cggcgaatgg 360
gttgcgccca cactgagcca aaaagccgaa aacatcaaag ccgcggccat caacggcaaa 420
atcagtaccg gcaataccgg cctttggctg aaagaaaaaa acagcattat caatgtgcgc 480
gaaatgttgc ccgaccatac cctgctgggc attaaaatct gggcccgcaa cgataaaaac 540
gaactggcag aggcagtgga agccgattcc gccgttttga acagcgacgg cagttggcag 600
ttgaaaaaca tccgcgcgag cacgcttggc gaagacaaaag tcgaggtctc tattgcggtc 660
gaagaaaant ggccgatttc cgtcaaacgc aacctgatgg acgtattgct cgtcaaacc 720
gaccaaagt ccgtcggcga actgaccacc tacatccgcc acctccaaan nnacagccaa 780
aacaccgaa tctacgccat cgcattggtg cgcaaattgg ttaccgccgc cgcagcctgg 840
gtgatggcgc tcgtcgccct tgccctttacc ccgcaaacca cccgccacgg caatatgggc 900
ttaaaantct tcggcggcat ctgtctcgga ttgctgttcc accttgccgg ncggctcttc 960
nggtttacca gccaaactcta cggcatcccg ccttctctcg ncggcgccact acctaccata 1020
gccttcgcct tgctcgccgt ttggctgata cgcaaacagg aaaaacgcta a 1071
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<210> 1825  
 <211> 356  
 <212> PRT  
 <213> Neisseria meningitidis

<220>  
 <221> misc\_feature  
 <222> (1)...(356)  
 <223> Xaa is any Amino Acid

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<400> 1825
Met Asn Leu Ile Ser Arg Tyr Ile Ile Arg Gln Met Ala Val Met Ala
      5                                10                                15

Val Tyr Ala Leu Leu Ala Phe Leu Ala Leu Tyr Ser Phe Phe Glu Ile
      20                                25                                30

Leu Tyr Glu Thr Gly Asn Leu Gly Lys Gly Ser Tyr Gly Ile Trp Glu
      35                                40                                45

Met Xaa Gly Tyr Thr Ala Leu Lys Met Xaa Ala Arg Ala Tyr Glu Leu
      50                                55                                60

Met Pro Leu Ala Val Leu Ile Gly Gly Leu Val Ser Xaa Ser Gln Leu
```

[illegible]

<210> 1826  
<211> 856  
<212> DNA  
<213> Neisseria meningitidis

<220>  
<221> misc\_feature  
<222> (1)...(856)  
<223> n = A,T,C or G

<400> 1826  
gcagtagccg aaactgccaa cagccagggc aaaggtaaac aggcaggcag ttcggtttct 60  
gtttcactga aaacttcagg cgacctttgc ggcaaaactca aaaccaccct taaaactttg 120  
gtctgctctt tggtttcctt gagtatggta ttgcctgccc atgccc aaat taccaccgac 180  
aaatcagcac ctaaaaacca gcaggtcgtt atccttaaaa ccaacactgg tgcccccttg 240  
gtgaatatcc aaactccgaa tggacgcgga ttgagccaca accgctanta cgcatttgat 300  
gttgacaaca aaggggcagt gttaaacaac gaccgtaaca ataatcgtt tgtgggtcaaa 360  
ggcagtgcgc aattgatttt gaacgaggta cgcgggtacgg ctagcaaact caacggcatc 420  
gttaccgtag gcggtcaaaa ggccgacgtg attattgcca accccaacgg cattaccgtt 480  
aatggcggcg gcttttaaaaa tgtcggtcgg ggcattctta ctaccggtgc gccccaaatc 540  
ggcaaagacg gtgcactgac aggatttgat gtgcgtcaag gcacattgga ccgtagragc 600  
agcaggttgg aatgataaag gcggagcmrm ytacaccggg gtacttgctc gtgcagttgc 660  
tttgccaggg aaattwmmgg gtaanaaact ggcggtttct accggtcctc agaaagtaga 720  
ttacgccagc ggcgaaatca gtgcaggtac ggcagcgggt acgaaaccga ctattgccct 780  
tgatactgcc gactggggcg gtatgtacgc cgacagcatc acactgattg ccaatgaaaa 840  
aggcgtagcg gtctaa 856

<210> 1827  
<211> 284  
<212> PRT  
<213> Neisseria meningitidis

<220>  
<221> misc\_feature  
<222> (1)...(284)  
<223> Xaa is any Amino Acid

<400> 1827  
Ala Val Ala Glu Thr Ala Asn Ser Gln Gly Lys Gly Lys Gln Ala Gly  
5 10 15  
Ser Ser Val Ser Val Ser Leu Lys Thr Ser Gly Asp Leu Cys Gly Lys  
20 25 30  
Leu Lys Thr Thr Leu Lys Thr Leu Val Cys Ser Leu Val Ser Leu Ser  
35 40 45  
Met Val Leu Pro Ala His Ala Gln Ile Thr Thr Asp Lys Ser Ala Pro  
50 55 60  
Lys Asn Gln Gln Val Val Ile Leu Lys Thr Asn Thr Gly Ala Pro Leu  
65 70 75 80  
Val Asn Ile Gln Thr Pro Asn Gly Arg Gly Leu Ser His Asn Arg Xaa  
85 90 95

Tyr Ala Phe Asp Val Asp Asn Lys Gly Ala Val Leu Asn Asn Asp Arg  
 100 105 110  
 Asn Asn Asn Pro Phe Val Val Lys Gly Ser Ala Gln Leu Ile Leu Asn  
 115 120 125  
 Glu Val Arg Gly Thr Ala Ser Lys Leu Asn Gly Ile Val Thr Val Gly  
 130 135 140  
 Gly Gln Lys Ala Asp Val Ile Ile Ala Asn Pro Asn Gly Ile Thr Val  
 145 150 155 160  
 Asn Gly Gly Gly Phe Lys Asn Val Gly Arg Gly Ile Leu Thr Thr Gly  
 165 170 175  
 Ala Pro Gln Ile Gly Lys Asp Gly Ala Leu Thr Gly Phe Asp Val Val  
 180 185 190  
 Lys Ala His Trp Thr Val Xaa Ala Ala Gly Trp Asn Asp Lys Gly Gly  
 195 200 205  
 Ala Xaa Tyr Thr Gly Val Leu Ala Arg Ala Val Ala Leu Gln Gly Lys  
 210 215 220  
 Xaa Xaa Gly Lys Xaa Leu Ala Val Ser Thr Gly Pro Gln Lys Val Asp  
 225 230 235 240  
 Tyr Ala Ser Gly Glu Ile Ser Ala Gly Thr Ala Ala Gly Thr Lys Pro  
 245 250 255  
 Thr Ile Ala Leu Asp Thr Ala Ala Leu Gly Gly Met Tyr Ala Asp Ser  
 260 265 270  
 Ile Thr Leu Ile Ala Asn Glu Lys Gly Val Gly Val  
 275 280

<210> 1828

<211> 5937

<212> DNA

<213> *Neisseria meningitidis*

<400> 1828

atgaataaaag gtttacatcg cattatcttt agtaaaaagc acagcaccat ggttgacagta 60  
 gccgaaactg ccaacagcca gggcaaaggt aaacaggcag gcagttcggg ttctgtttca 120  
 ctgaaaactt caggcgacct ttgcggcaaa ctcaaaacca cccttaaaac tttggtctgc 180  
 tctttggttt ccttgagtat ggtattgcct gcccatgccc aaattaccac cgacaaatca 240  
 gcacctaaaa accagcaggt cgttatcctt aaaaccaaca ctggtgcccc cttggtgaat 300  
 atccaaactc cgaatggacg cggattgagc cacaaccgct atacgcagtt tgatgttgac 360  
 aacaaagggg cagtgttaaa caacgaccgt aacaataatc cgtttgtggg caaaggcagt 420  
 gcgcaattga ttttgaacga ggtacgcggt acggctagca aactcaacgg catcgttacc 480  
 gtaggcgggc aaaaggccga cgtgattatt gccaaaccca acggcattac cgttaatggc 540  
 ggcggtctta aaaatgtcgg tcggggcatc ttaactaccg gtgcgcccc aatcggcaaa 600  
 gacggtgcac tgacaggatt tgatgtgcgt caaggcacat tgaccgtagg agcagcaggt 660  
 tggaatgata aaggcggagc cgactacacc ggggtacttg ctctgtgcagt tgctttgcag 720  
 gggaaattac agggtaaaaa cctggcggtt tctaccggtc ctcaaaaagt agattacgcc 780  
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Leu Ile Gly Thr Ala Gly Lys Leu Ala Ile Ser Thr Cys Met Ala Asn		
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Pro Ser Gly Cys Thr Val Met Val Thr Gln Ala Ala Glu Ala Gly Ala		
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Gly Ile Ala Thr Gly Ala Val Thr Val Gly Asn Ala Trp Glu Ala Pro		
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Val Gly Ala Leu Ser Lys Ala Lys Ala Ala Lys Gln Ala Ile Pro Thr		
1825	1830 1835	1840
Gln Thr Val Lys Glu Leu Asp Gly Leu Leu Gln Glu Ser Lys Asn Ile		
	1845 1850	1855
Gly Ala Val Asn Thr Arg Ile Asn Ile Ala Asn Ser Thr Thr Arg Tyr		
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Thr Pro Met Arg Gln Thr Gly Gln Pro Val Ser Ala Gly Phe Glu His		
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Val Leu Glu Gly His Phe His Arg Pro Ile Ala Asn Asn Arg Ser Val		
	1890 1895	1900
Phe Thr Ile Ser Pro Asn Glu Leu Lys Val Ile Leu Gln Ser Asn Lys		
1905	1910 1915	1920
Val Val Ser Ser Pro Val Ser Met Thr Pro Asp Gly Gln Tyr Met Arg		
	1925 1930	1935

Thr Val Asp Val Gly Lys Val Ile Gly Thr Thr Ser Ile Lys Glu Gly  
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Leu Ile Thr Thr Tyr Pro Val Lys Gly Asn  
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<211> 4599  
<212> DNA  
<213> Neisseria meningitidis

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4599

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<210> 1831
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Xaa	Asn	Leu	Ser	Ala	Gly	Gly	Arg	Thr	Thr	Ile	Asn	Asp	Ala	Thr	Ile	
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<223> n = A,T,C or G

<400> 1832  
cgcttcattc atgatgaagc agtcggcagc aacatcggcg gcggcaaaat gattgttgca 60  
gccgggcagg atatcaatgt acgcggcana agccttattt ctgataaggg cattgtttta 120  
aaagcaggac acgacatcga tatttctact gcccataatc gctataccgg caatgaatac 180  
cacgagagca waaawtcagg cgtcatgggt actggcggat tgggctttac tatcggtaac 240  
cggaaaacta ccgatgacac tgatcgtacc aatattgtsc atacaggcag cattataggc 300  
agcctgaatg gagacaccgt tacagttgca ggaaaccgct accgacaaac cggcagtacc 360  
gtctccagcc ccgaggggcg caataccgtc acagccaaaw gcatagatgt agagttcgca 420  
aacaaccggt atgccactga ctacgcccac acccagggaa caaaaaggcc ttaccgtcgc 480  
cctcaatgtc ccggttggtc aagctgcaca aaacttcata caagcagccc aaaatgtggg 540  
caaaagtaaa aataaacgcg ttaatgccat ggctgcagcc aatgctgcat ggcagagtta 600  
tcaagcaacc caacaaatgc aacaatttgc tccaagcagc agtgcgggac aaggtcaaaa 660  
ctacaatcaa agccccagta tcagtgtgtc cattacntac ggcgaaacaga aaagtctgaa 720  
cgagcaaaaa agacattaca ccgaagcggc agcaagtcaa attatcgga aagggcaaac 780  
cacacttgcg gcaacaggaa gtggggagca gtccaatatc aatattacag gttccgatgt 840  
catcggccat gcaggtactc cnetcattgc cgacaaccat atcagactcc aatctgcca 900  
acaggacggc agcgagcaaa gcaaaaacaa aagcagtggg tggaatgcag gcgtacgtnn 960  
caaaataggc aacggcatca ggtttggaat taccgcggga ggaaatatcg gtaaaggtaa 1020  
agagcaaggg ggaagtacta cccaccgcca caccatgtc ggcagcaca ccggcaaac 1080  
taccatccga agcggcgggg gataccacc tcaaagggtg gcagctcatc ggcaaggca 1140  
tacaggcaga tacgcgcaac ctgcatatag aaagtgttca agatactgaa acctatcaga 1200  
gcaaacagca aaacggcaat gtccaagttt actgtcgggt acggattcag tgcaagcggc 1260  
agttaccgcc aaagcaaagt caaagcagac catgcctcgg taaccgggca aagcgggtatt 1320  
tatgccggag aagacggcta tcaaatyaaa gtyagagaca acacagacct yaagggcggt 1380  
atcatcacgt ctagccaaag cgcagaagat aagggcaaaa acctttttca gacggccacc 1440  
cttactgcca gcgacattca aaaccacagc cgctacgaag gcagaagctt cggcataggc 1500  
ggcagtttcg acctgaacgg cggctgggac ggcacgggta ccgacaaaca aggcaggcct 1560  
accgacagga taagcccggc agccggctac ggcagcgacg gagacagcaa aaacagcacc 1620  
acccgcagcg gcgtcaacac ccacaacata cacatcaccg acgaagcggg acaacttgcc 1680  
cgaacaggca ggactgcaaa agaaaccgaa gcgcgtatct acaccggcat cgacaccgaa 1740  
actgcggatc aacactcagg ccatctgaaa aacagcttcg ac 1782

<210> 1833  
<211> 593  
<212> PRT  
<213> *Neisseria meningitidis*

<220>  
<221> misc\_feature  
<222> (1)...(593)  
<223> Xaa is any Amino Acid

<400> 1833  
Arg Phe Ile His Asp Glu Ala Val Gly Ser Asn Ile Gly Gly Gly Lys

5					10					15					
Met	Ile	Val	Ala	Ala	Gly	Gln	Asp	Ile	Asn	Val	Arg	Gly	Xaa	Ser	Leu
			20					25					30		
Ile	Ser	Asp	Lys	Gly	Ile	Val	Leu	Lys	Ala	Gly	His	Asp	Ile	Asp	Ile
		35					40					45			
Ser	Thr	Ala	His	Asn	Arg	Tyr	Thr	Gly	Asn	Glu	Tyr	His	Glu	Ser	Xaa
	50					55					60				
Xaa	Ser	Gly	Val	Met	Gly	Thr	Gly	Gly	Leu	Gly	Phe	Thr	Ile	Gly	Asn
65					70					75					80
Arg	Lys	Thr	Thr	Asp	Asp	Thr	Asp	Arg	Thr	Asn	Ile	Val	His	Thr	Gly
				85					90					95	
Ser	Ile	Ile	Gly	Ser	Leu	Asn	Gly	Asp	Thr	Val	Thr	Val	Ala	Gly	Asn
			100					105					110		
Arg	Tyr	Arg	Gln	Thr	Gly	Ser	Thr	Val	Ser	Ser	Pro	Glu	Gly	Arg	Asn
		115					120					125			
Thr	Val	Thr	Ala	Lys	Xaa	Ile	Asp	Val	Glu	Phe	Ala	Asn	Asn	Arg	Tyr
	130					135					140				
Ala	Thr	Asp	Tyr	Ala	His	Thr	Gln	Glu	Gln	Lys	Gly	Leu	Thr	Val	Ala
145					150					155					160
Leu	Asn	Val	Pro	Val	Val	Gln	Ala	Ala	Gln	Asn	Phe	Ile	Gln	Ala	Ala
				165					170					175	
Gln	Asn	Val	Gly	Lys	Ser	Lys	Asn	Lys	Arg	Val	Asn	Ala	Met	Ala	Ala
			180					185					190		
Ala	Asn	Ala	Ala	Trp	Gln	Ser	Tyr	Gln	Ala	Thr	Gln	Gln	Met	Gln	Gln
		195					200					205			
Phe	Ala	Pro	Ser	Ser	Ser	Ala	Gly	Gln	Gly	Gln	Asn	Tyr	Asn	Gln	Ser
	210					215					220				
Pro	Ser	Ile	Ser	Val	Ser	Ile	Xaa	Tyr	Gly	Glu	Gln	Lys	Ser	Arg	Asn
225					230					235					240
Glu	Gln	Lys	Arg	His	Tyr	Thr	Glu	Ala	Ala	Ala	Ser	Gln	Ile	Ile	Gly
				245				250						255	
Lys	Gly	Gln	Thr	Thr	Leu	Ala	Ala	Thr	Gly	Ser	Gly	Glu	Gln	Ser	Asn
			260					265					270		
Ile	Asn	Ile	Thr	Gly	Ser	Asp	Val	Ile	Gly	His	Ala	Gly	Thr	Xaa	Leu
	275						280					285			
Ile	Ala	Asp	Asn	His	Ile	Arg	Leu	Gln	Ser	Ala	Lys	Gln	Asp	Gly	Ser
	290					295					300				
Glu	Gln	Ser	Lys	Asn	Lys	Ser	Ser	Gly	Trp	Asn	Ala	Gly	Val	Arg	Xaa

305				310				315				320				
Lys	Ile	Gly	Asn	Gly	Ile	Arg	Phe	Gly	Ile	Thr	Ala	Gly	Gly	Asn	Ile	
				325					330					335		
Gly	Lys	Gly	Lys	Glu	Gln	Gly	Gly	Ser	Thr	Thr	His	Arg	His	Thr	His	
				340					345					350		
Val	Gly	Ser	Thr	Thr	Gly	Lys	Thr	Thr	Ile	Arg	Ser	Gly	Gly	Asp	Thr	
				355					360					365		
Thr	Leu	Lys	Gly	Val	Gln	Leu	Ile	Gly	Lys	Gly	Ile	Gln	Ala	Asp	Thr	
				370					375					380		
Arg	Asn	Leu	His	Ile	Glu	Ser	Val	Gln	Asp	Thr	Glu	Thr	Tyr	Gln	Ser	
				385					390					395		
Lys	Gln	Gln	Asn	Gly	Asn	Val	Gln	Val	Thr	Val	Gly	Tyr	Gly	Phe	Ser	
				405					410					415		
Ala	Ser	Gly	Ser	Tyr	Arg	Gln	Ser	Lys	Val	Lys	Ala	Asp	His	Ala	Ser	
				420					425					430		
Val	Thr	Gly	Gln	Ser	Gly	Ile	Tyr	Ala	Gly	Glu	Asp	Gly	Tyr	Gln	Ile	
				435					440					445		
Lys	Val	Arg	Asp	Asn	Thr	Asp	Leu	Lys	Gly	Gly	Ile	Ile	Thr	Ser	Ser	
				450					455					460		
Gln	Ser	Ala	Glu	Asp	Lys	Gly	Lys	Asn	Leu	Phe	Gln	Thr	Ala	Thr	Leu	
				465					470					475		
Thr	Ala	Ser	Asp	Ile	Gln	Asn	His	Ser	Arg	Tyr	Glu	Gly	Arg	Ser	Phe	
				485					490					495		
Gly	Ile	Gly	Gly	Ser	Phe	Asp	Leu	Asn	Gly	Gly	Trp	Asp	Gly	Thr	Val	
				500					505					510		
Thr	Asp	Lys	Gln	Gly	Arg	Pro	Thr	Asp	Arg	Ile	Ser	Pro	Ala	Ala	Gly	
				515					520					525		
Tyr	Gly	Ser	Asp	Gly	Asp	Ser	Lys	Asn	Ser	Thr	Thr	Arg	Ser	Gly	Val	
				530					535					540		
Asn	Thr	His	Asn	Ile	His	Ile	Thr	Asp	Glu	Ala	Gly	Gln	Leu	Ala	Arg	
				545					550					555		
Thr	Gly	Arg	Thr	Ala	Lys	Glu	Thr	Glu	Ala	Arg	Ile	Tyr	Thr	Gly	Ile	
				565					570					575		
Asp	Thr	Glu	Thr	Ala	Asp	Gln	His	Ser	Gly	His	Leu	Lys	Asn	Ser	Phe	
				580					585					590		
Asp																

<210> 1834  
<211> 390  
<212> DNA  
<213> *Neisseria meningitidis*

<400> 1834  
acgaccggca gcctcggcgg cataactggcc ggcgggcgga cttcccttgc cgcaccgtat 60  
ttggacaaag cggcggaaaa cctcgggtccg gcgggcaaag cggcggtcaa cgcactgggc 120  
ggtgcgggcca tcggctatgc aactgggtggt agtgggtggtg ctgtgggtggg tgcgaatgta 180  
gattggaaca ataggcagct gcataccgaaa gaaatggcgt tggccgacaa atatgccgaa 240  
gccctcaagc gcgaagttga aaaacgcgaa ggcagaaaaa tcagcagcca agaagcggca 300  
atgagaatcc gcaggcagat atgcgttggg tggacaaagg ttcccaagac ggctataccg 360  
accaaagcgt catatccctt atcggaatga 390

<210> 1835  
<211> 129  
<212> PRT  
<213> *Neisseria meningitidis*

<400> 1835  
Thr Thr Gly Ser Leu Gly Gly Ile Leu Ala Gly Gly Gly Thr Ser Leu  
5 10 15  
Ala Ala Pro Tyr Leu Asp Lys Ala Ala Glu Asn Leu Gly Pro Ala Gly  
20 25 30  
Lys Ala Ala Val Asn Ala Leu Gly Gly Ala Ala Ile Gly Tyr Ala Thr  
35 40 45  
Gly Gly Ser Gly Gly Ala Val Val Gly Ala Asn Val Asp Trp Asn Asn  
50 55 60  
Arg Gln Leu His Pro Lys Glu Met Ala Leu Ala Asp Lys Tyr Ala Glu  
65 70 75 80  
Ala Leu Lys Arg Glu Val Glu Lys Arg Glu Gly Arg Lys Ile Ser Ser  
85 90 95  
Gln Glu Ala Ala Met Arg Ile Arg Arg Gln Ile Cys Val Gly Trp Thr  
100 105 110  
Lys Val Pro Lys Thr Ala Ile Pro Thr Lys Ala Ser Tyr Pro Leu Ser  
115 120 125  
Glu

<210> 1836  
<211> 960  
<212> DNA  
<213> *Neisseria meningitidis*

<400> 1836  
caatgccgtc tgaaaagctc acaattttac agacggcatt tgttatgcaa gtacatatatc 60  
agattcccta tatactgccc agrkgcgtgc gtggctgaag acacccccta cgcttgctat 120

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ttgraacagc tccaagtcac caaagacgtc aactggaacc aggtacwact ggcgtacgac 180
aaatgggact ataaacagga aggccttaacc ggagccggag cagcgattat tgcgctggct 240
gttacggtgg ttactgcggg cgcgggagcc ggagccgcac tgggcttaaa cggcgcgggc 300
gcagcggcaa ccgatgccgc attcgctcgc ctggccagcc aggcctccgt atcgctcatc 360
aacaacaaag gcaatatcgg taacaccctg aaagagctgg gcagaagcag cacggtgaaa 420
aatctgatgg ttgccgtcgc taccgcaggc gtagccgaca aaatcggtgc ttcggcactg 480
aacaatgtca gcgataagca gtggatcaac aacctgaccg tcaacctggc caatgcgggc 540
agtgcgcgac tgattaatac cgctgtcaac ggcggcagcc tgaaagacaa tctggaagcg 600
aatatccttg cggctttggt gaatactgcg catggagaag cagccagtaa aatcaaacag 660
ttggatcagc actacattac ccacaagatt gcccattgcca tagcgggctg tgcggctgcg 720
gcggcgaata agggcaagtg tcaggatggt gcgataggtg cggctgtggg cgagatagtc 780
ggggagggtt tgacaaacgg caaaaatcct gacactttga cagctaaaga acgcgaacag 840
atcttgcat acagcaaact ggttgccggt acggtaaagc gtgtggtcgg cggcgatgta 900
aatgcggcgg cgaatgcggc tgaggtagcg gtgaaaaata atcagcttag cgacaaatga 960

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<210> 1837
<211> 319
<212> PRT
<213> Neisseria meningitidis

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<220>
<221> misc_feature
<222> (1)...(319)
<223> Xaa is any Amino Acid

```

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<400> 1837
Gln Cys Arg Leu Lys Ser Ser Gln Phe Tyr Arg Arg His Leu Leu Cys
      5              10              15

Lys Tyr Ile Tyr Arg Phe Pro Ile Tyr Cys Pro Xaa Ala Cys Val Ala
      20              25              30

Glu Asp Thr Pro Tyr Ala Cys Tyr Leu Xaa Gln Leu Gln Val Thr Lys
      35              40              45

Asp Val Asn Trp Asn Gln Val Xaa Leu Ala Tyr Asp Lys Trp Asp Tyr
      50              55              60

Lys Gln Glu Gly Leu Thr Gly Ala Gly Ala Ala Ile Ile Ala Leu Ala
      65              70              75              80

Val Thr Val Val Thr Ala Gly Ala Gly Ala Gly Ala Ala Leu Gly Leu
      85              90              95

Asn Gly Ala Ala Ala Ala Ala Thr Asp Ala Ala Phe Ala Ser Leu Ala
      100             105             110

Ser Gln Ala Ser Val Ser Leu Ile Asn Asn Lys Gly Asn Ile Gly Asn
      115             120             125

Thr Leu Lys Glu Leu Gly Arg Ser Ser Thr Val Lys Asn Leu Met Val
      130             135             140

Ala Val Ala Thr Ala Gly Val Ala Asp Lys Ile Gly Ala Ser Ala Leu
      145             150             155             160

```



Asn Asn Val Ser Asp Lys Gln Trp Ile Asn Asn Leu Thr Val Asn Leu  
 165 170 175  
 Ala Asn Ala Gly Ser Ala Ala Leu Ile Asn Thr Ala Val Asn Gly Gly  
 180 185 190  
 Ser Leu Lys Asp Asn Leu Glu Ala Asn Ile Leu Ala Ala Leu Val Asn  
 195 200 205  
 Thr Ala His Gly Glu Ala Ala Ser Lys Ile Lys Gln Leu Asp Gln His  
 210 215 220  
 Tyr Ile Thr His Lys Ile Ala His Ala Ile Ala Gly Cys Ala Ala Ala  
 225 230 235 240  
 Ala Ala Asn Lys Gly Lys Cys Gln Asp Gly Ala Ile Gly Ala Ala Val  
 245 250 255  
 Gly Glu Ile Val Gly Glu Ala Leu Thr Asn Gly Lys Asn Pro Asp Thr  
 260 265 270  
 Leu Thr Ala Lys Glu Arg Glu Gln Ile Leu Ala Tyr Ser Lys Leu Val  
 275 280 285  
 Ala Gly Thr Val Ser Gly Val Val Gly Gly Asp Val Asn Ala Ala Ala  
 290 295 300  
 Asn Ala Ala Glu Val Ala Val Lys Asn Asn Gln Leu Ser Asp Lys  
 305 310 315

<210> 1838  
 <211> 1860  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1838  
 atgcaagtaa atattcagat tccctatata ctgcccagat gcgtgcgtgc tgaagacacc 60  
 ccctacgctt gctatttgaa acagctccaa gtcaccaaag acgtcaactg gaaccaggta 120  
 caactggcgt acgacaaatg ggactataaa caggaaggct taaccggagc cggagcagcg 180  
 attattgcgc tggctgttac cgtgggtact gcgggcgcgg gagccggagc cgcactgggc 240  
 ttaaaccggcg cggccgcagc ggcaaccgat gccgcattcg cctcgctggc cagccaggct 300  
 tccgtatcgc tcatcaacaa caaaggcaat atcggttaaca ccctgaaaga gctgggcaga 360  
 agcagcacgg tgaaaaaatct gatggttgcc gtcgctaccg caggcgtagc cgacaaaatc 420  
 ggtgcttcgg cactgaacaa tgtcagcgat aagcagtgga tcaacaacct gaccgtcaac 480  
 ctggccaatg cgggcagtgc cgcactgatt aataccgctg tcaacggcgg cagcctgaaa 540  
 gacaatctgg aagcgaatat ccttgccggt ttggtgaata ctgcgcatgg agaagcagcc 600  
 agtaaaatca aacagttgga tcagcactac attaccaca agattgccca tgccatagcg 660  
 ggctgtgcgg ctgcccggcg gaataagggc aagtgtcagg atggtgcgat aggtgcccgt 720  
 gtgggcgaga tagtcgggga ggctttgaca aacggcaaaa atcctgacac tttgacagct 780  
 aaagaacgcg aacagatttt ggcatacagc aaactgggtt cgggtacggt aagcgggtgtg 840  
 gtcggcgcg atgtaaatgc ggcggcgaat gcggctgagg tagcggtgaa aaataatcag 900  
 cttagcgaca aagagggtag agaatttgat aacgaaatga ctgcatgcgc caaacagaat 960  
 aatcctcaac tgtgcagaaa aaatactgta aaaaagtatc aaaatgttgc tgataaaaga 1020  
 cttgctgctt cgattgcaat atgtacggat atatcccgta gtactgaatg tagaacaatc 1080  
 agaaaacaac atttgatcga tagtagaagc cttcattcat cttgggaagc aggtctaatt 1140  
 ggtaaagatg atgaatggta taaattattc agcaaatctt acaccaagc agatttggct 1200

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ttacagtctt atcatttgaa tactgctgct aaatcttggc ttcaatcggg caatacaaag 1260
cctttatccg aatggatgtc cgaccaaggt tatacactta tttcaggagt taatcctaga 1320
ttcattccaa taccaagagg gtttgtaaaa caaaatacac ctattactaa tgtcaaatac 1380
ccggaaggca tcagtttcga tacaaccta aaaagacatc tggcaaatgc tgatggtttt 1440
agtcaaaaac agggcattaa aggagcccat aaccgcacca attttatggc agaactaaat 1500
tcacgaggag gacgcgtaaa atctgaaacc caaactgata ttgaaggcat taccggaatt 1560
aaatatgaga ttcctacact agacaggaca ggtaaacctg atgggtggatt taaggaaatt 1620
tcaagtataa aaactgttta taatcctaaa aaattttctg atgataaaat acttcaaattg 1680
gctcaaaatg ctgcttcaca aggatattca aaagcctcta aaattgctca aaatgaaaga 1740
actaaatcaa tatcggaag aaaaaatgtc attcaattct cagaaacctt tgacggaatc 1800
aaatttagat catattttga tgtaaataca ggaagaatta caaacattca cccagaataa 1860

```

<210> 1839

<211> 619

<212> PRT

<213> Neisseria meningitidis

<400> 1839

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Met Gln Val Asn Ile Gln Ile Pro Tyr Ile Leu Pro Arg Cys Val Arg
          5                      10                      15

```

```

Ala Glu Asp Thr Pro Tyr Ala Cys Tyr Leu Lys Gln Leu Gln Val Thr
          20                      25                      30

```

```

Lys Asp Val Asn Trp Asn Gln Val Gln Leu Ala Tyr Asp Lys Trp Asp
          35                      40                      45

```

```

Tyr Lys Gln Glu Gly Leu Thr Gly Ala Gly Ala Ala Ile Ile Ala Leu
          50                      55                      60

```

```

Ala Val Thr Val Val Thr Ala Gly Ala Gly Ala Gly Ala Ala Leu Gly
          65                      70                      75                      80

```

```

Leu Asn Gly Ala Ala Ala Ala Ala Thr Asp Ala Ala Phe Ala Ser Leu
          85                      90                      95

```

```

Ala Ser Gln Ala Ser Val Ser Leu Ile Asn Asn Lys Gly Asn Ile Gly
          100                     105                     110

```

```

Asn Thr Leu Lys Glu Leu Gly Arg Ser Ser Thr Val Lys Asn Leu Met
          115                     120                     125

```

```

Val Ala Val Ala Thr Ala Gly Val Ala Asp Lys Ile Gly Ala Ser Ala
          130                     135                     140

```

```

Leu Asn Asn Val Ser Asp Lys Gln Trp Ile Asn Asn Leu Thr Val Asn
          145                     150                     155                     160

```

```

Leu Ala Asn Ala Gly Ser Ala Ala Leu Ile Asn Thr Ala Val Asn Gly
          165                     170                     175

```

```

Gly Ser Leu Lys Asp Asn Leu Glu Ala Asn Ile Leu Ala Ala Leu Val
          180                     185                     190

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Asn Thr Ala His Gly Glu Ala Ala Ser Lys Ile Lys Gln Leu Asp Gln
          195                     200                     205

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His	Tyr	Ile	Thr	His	Lys	Ile	Ala	His	Ala	Ile	Ala	Gly	Cys	Ala	Ala	
210						215					220					
Ala	Ala	Ala	Asn	Lys	Gly	Lys	Cys	Gln	Asp	Gly	Ala	Ile	Gly	Ala	Ala	
225					230					235					240	
Val	Gly	Glu	Ile	Val	Gly	Glu	Ala	Leu	Thr	Asn	Gly	Lys	Asn	Pro	Asp	
				245					250					255		
Thr	Leu	Thr	Ala	Lys	Glu	Arg	Glu	Gln	Ile	Leu	Ala	Tyr	Ser	Lys	Leu	
			260					265					270			
Val	Ala	Gly	Thr	Val	Ser	Gly	Val	Val	Gly	Gly	Asp	Val	Asn	Ala	Ala	
		275					280					285				
Ala	Asn	Ala	Ala	Glu	Val	Ala	Val	Lys	Asn	Asn	Gln	Leu	Ser	Asp	Lys	
	290					295					300					
Glu	Gly	Arg	Glu	Phe	Asp	Asn	Glu	Met	Thr	Ala	Cys	Ala	Lys	Gln	Asn	
305					310					315					320	
Asn	Pro	Gln	Leu	Cys	Arg	Lys	Asn	Thr	Val	Lys	Lys	Tyr	Gln	Asn	Val	
				325					330					335		
Ala	Asp	Lys	Arg	Leu	Ala	Ala	Ser	Ile	Ala	Ile	Cys	Thr	Asp	Ile	Ser	
			340					345					350			
Arg	Ser	Thr	Glu	Cys	Arg	Thr	Ile	Arg	Lys	Gln	His	Leu	Ile	Asp	Ser	
		355					360					365				
Arg	Ser	Leu	His	Ser	Ser	Trp	Glu	Ala	Gly	Leu	Ile	Gly	Lys	Asp	Asp	
	370					375					380					
Glu	Trp	Tyr	Lys	Leu	Phe	Ser	Lys	Ser	Tyr	Thr	Gln	Ala	Asp	Leu	Ala	
385					390					395					400	
Leu	Gln	Ser	Tyr	His	Leu	Asn	Thr	Ala	Ala	Lys	Ser	Trp	Leu	Gln	Ser	
				405					410					415		
Gly	Asn	Thr	Lys	Pro	Leu	Ser	Glu	Trp	Met	Ser	Asp	Gln	Gly	Tyr	Thr	
			420					425					430			
Leu	Ile	Ser	Gly	Val	Asn	Pro	Arg	Phe	Ile	Pro	Ile	Pro	Arg	Gly	Phe	
		435					440					445				
Val	Lys	Gln	Asn	Thr	Pro	Ile	Thr	Asn	Val	Lys	Tyr	Pro	Glu	Gly	Ile	
	450					455					460					
Ser	Phe	Asp	Thr	Asn	Leu	Lys	Arg	His	Leu	Ala	Asn	Ala	Asp	Gly	Phe	
465					470					475					480	
Ser	Gln	Lys	Gln	Gly	Ile	Lys	Gly	Ala	His	Asn	Arg	Thr	Asn	Phe	Met	
				485					490					495		
Ala	Glu	Leu	Asn	Ser	Arg	Gly	Gly	Arg	Val	Lys	Ser	Glu	Thr	Gln	Thr	
			500					505						510		

Asp Ile Glu Gly Ile Thr Arg Ile Lys Tyr Glu Ile Pro Thr Leu Asp  
 515 520 525  
 Arg Thr Gly Lys Pro Asp Gly Gly Phe Lys Glu Ile Ser Ser Ile Lys  
 530 535 540  
 Thr Val Tyr Asn Pro Lys Lys Phe Ser Asp Asp Lys Ile Leu Gln Met  
 545 550 555 560  
 Ala Gln Asn Ala Ala Ser Gln Gly Tyr Ser Lys Ala Ser Lys Ile Ala  
 565 570 575  
 Gln Asn Glu Arg Thr Lys Ser Ile Ser Glu Arg Lys Asn Val Ile Gln  
 580 585 590  
 Phe Ser Glu Thr Phe Asp Gly Ile Lys Phe Arg Ser Tyr Phe Asp Val  
 595 600 605  
 Asn Thr Gly Arg Ile Thr Asn Ile His Pro Glu  
 610 615

<210> 1840  
 <211> 1788  
 <212> DNA  
 <213> Neisseria meningitidis

<220>  
 <221> misc\_feature  
 <222> (1)...(1788)  
 <223> n = A,T,C or G

<400> 1840  
 tatctgaaac agctccaagt agcgaaaaac atcaactgga atcaggtgca gcttgcttac 60  
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 gccgttaccg tgggtcacctc aggcgcagga accggagccg tattggggatt aaacgggtgcg 180  
 nccgccgccg caaccgatgc agcattcgcc tctttggcca gccaggcttc cgtatcgttc 240  
 atcaacaaca aaggcgatgt cggcaaaacc ctgaaagagc tgggcagaag cagcacgggtg 300  
 aaaaatctgg tgggtgccgc cgctaccgca ggcgtagccg acaaaatcgg cgcttcggca 360  
 ctgancaatg tcagcgataa gcagtggatc aacaacctga ccgtcaacct agccaatgcg 420  
 ggcagtgccg cactgattaa taccgctgtc aacggcggca gcctgaaaga cantctggaa 480  
 gcgaatatcc ttgcggcttt ggtcaatacc ggcgatggag aagcagccag taaaatcaaa 540  
 cagttggatc agcactacat agtccacaag attgcccatt ccatagcggg ctgtgcggca 600  
 gcggcggcga ataagggcaa gtgtcaggat ggtgcgatag gtgcggctgt gggcgagata 660  
 gtgcggggagg ctttgacaaa cggcaaaaat cctgacactt tgacagctaa agaacgcgaa 720  
 cagatttttg catacagcaa actggttgcc ggtacggtaa gcggtgtggt cggcggcgat 780  
 gtaaattgcg cggcgaatgc ggctgaggta gcggtgaaaa ataatacagct tagcgacnaa 840  
 gagggtagag aatttgataa cgaaatgact gcattgcgca aacagaatan tcctcaactg 900  
 tgcagaaaaa atactgtaaa aaagtatcaa aatggttgctg ataaaagact tgctgcttcg 960  
 attgcaatat gtacggatat atcccgtagt actgaatgta gaacaatcag aaaacaacat 1020  
 ttgatcgata gtagaagcct tcattcatct tgggaagcag gtctaattgg taaagatgat 1080  
 gaatggtata aattattcag caaatcttac acccaagcag atttggtctt acagtcttat 1140  
 catttgataa ctgctgctaa atcttggtct caatcgggca atacaaagcc tttatccgaa 1200  
 tggatgtccg accaagggtta tacacttatt tcaggagtta atcctagatt cattccaata 1260  
 ccaagagggt ttgtaaaaca aaatacacct attactaatg tcaaataccc ggaaggcatc 1320  
 agtttcgata caaacctana aagacatctg gcaaattgctg atgggttttag tcaagaacag 1380  
 ggcattaaag gagcccataa ccgcaccaat nttatggcag aactaaattc acgaggagga 1440

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ngngtaaaat ctgaaaccca nactgatatt gaaggcatta cccgaattaa atatgagatt 1500
cctacactag acaggacagg taaacctgat ggtggattta aggaaatttc aagtataaaa 1560
actgtttata atcctaaaaa nttttngat gataaaatac ttcaaattggc tcaanatgct 1620
gnttcacaag gatattcaaa agcctctaaa attgctcaaa atgaaagaac taaatcaata 1680
tcggaagaa aaaatgtcat tcaattctca gaaacctttg acggaatcaa atttagannn 1740
tatntngatg taaatacagg aagaattaca aacattcacc cagaataa 1788

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<210> 1841
<211> 595
<212> PRT
<213> Neisseria meningitidis

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<220>
<221> misc_feature
<222> (1)...(595)
<223> Xaa is any Amino Acid

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<400> 1841
Tyr Leu Lys Gln Leu Gln Val Ala Lys Asn Ile Asn Trp Asn Gln Val
      5                      10                      15

Gln Leu Ala Tyr Asp Arg Trp Asp Tyr Lys Gln Glu Gly Leu Thr Glu
      20                      25                      30

Ala Gly Ala Ala Ile Ile Ala Leu Ala Val Thr Val Val Thr Ser Gly
      35                      40                      45

Ala Gly Thr Gly Ala Val Leu Gly Leu Asn Gly Ala Xaa Ala Ala Ala
      50                      55                      60

Thr Asp Ala Ala Phe Ala Ser Leu Ala Ser Gln Ala Ser Val Ser Phe
      65                      70                      75                      80

Ile Asn Asn Lys Gly Asp Val Gly Lys Thr Leu Lys Glu Leu Gly Arg
      85                      90                      95

Ser Ser Thr Val Lys Asn Leu Val Val Ala Ala Ala Thr Ala Gly Val
      100                     105                     110

Ala Asp Lys Ile Gly Ala Ser Ala Leu Xaa Asn Val Ser Asp Lys Gln
      115                     120                     125

Trp Ile Asn Asn Leu Thr Val Asn Leu Ala Asn Ala Gly Ser Ala Ala
      130                     135                     140

Leu Ile Asn Thr Ala Val Asn Gly Gly Ser Leu Lys Asp Xaa Leu Glu
      145                     150                     155                     160

Ala Asn Ile Leu Ala Ala Leu Val Asn Thr Ala His Gly Glu Ala Ala
      165                     170                     175

Ser Lys Ile Lys Gln Leu Asp Gln His Tyr Ile Val His Lys Ile Ala
      180                     185                     190

His Ala Ile Ala Gly Cys Ala Ala Ala Ala Ala Asn Lys Gly Lys Cys
      195                     200                     205

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Gln	Asp	Gly	Ala	Ile	Gly	Ala	Ala	Val	Gly	Glu	Ile	Val	Gly	Glu	Ala	
210						215					220					
Leu	Thr	Asn	Gly	Lys	Asn	Pro	Asp	Thr	Leu	Thr	Ala	Lys	Glu	Arg	Glu	
225					230					235					240	
Gln	Ile	Leu	Ala	Tyr	Ser	Lys	Leu	Val	Ala	Gly	Thr	Val	Ser	Gly	Val	
				245					250					255		
Val	Gly	Gly	Asp	Val	Asn	Ala	Ala	Ala	Asn	Ala	Ala	Glu	Val	Ala	Val	
			260					265					270			
Lys	Asn	Asn	Gln	Leu	Ser	Asp	Xaa	Glu	Gly	Arg	Glu	Phe	Asp	Asn	Glu	
		275					280					285				
Met	Thr	Ala	Cys	Ala	Lys	Gln	Asn	Xaa	Pro	Gln	Leu	Cys	Arg	Lys	Asn	
	290					295					300					
Thr	Val	Lys	Lys	Tyr	Gln	Asn	Val	Ala	Asp	Lys	Arg	Leu	Ala	Ala	Ser	
305					310					315					320	
Ile	Ala	Ile	Cys	Thr	Asp	Ile	Ser	Arg	Ser	Thr	Glu	Cys	Arg	Thr	Ile	
				325					330					335		
Arg	Lys	Gln	His	Leu	Ile	Asp	Ser	Arg	Ser	Leu	His	Ser	Ser	Trp	Glu	
			340					345					350			
Ala	Gly	Leu	Ile	Gly	Lys	Asp	Asp	Glu	Trp	Tyr	Lys	Leu	Phe	Ser	Lys	
		355					360					365				
Ser	Tyr	Thr	Gln	Ala	Asp	Leu	Ala	Leu	Gln	Ser	Tyr	His	Leu	Asn	Thr	
	370					375					380					
Ala	Ala	Lys	Ser	Trp	Leu	Gln	Ser	Gly	Asn	Thr	Lys	Pro	Leu	Ser	Glu	
385					390					395					400	
Trp	Met	Ser	Asp	Gln	Gly	Tyr	Thr	Leu	Ile	Ser	Gly	Val	Asn	Pro	Arg	
				405					410					415		
Phe	Ile	Pro	Ile	Pro	Arg	Gly	Phe	Val	Lys	Gln	Asn	Thr	Pro	Ile	Thr	
			420					425					430			
Asn	Val	Lys	Tyr	Pro	Glu	Gly	Ile	Ser	Phe	Asp	Thr	Asn	Leu	Xaa	Arg	
		435					440					445				
His	Leu	Ala	Asn	Ala	Asp	Gly	Phe	Ser	Gln	Glu	Gln	Gly	Ile	Lys	Gly	
	450					455					460					
Ala	His	Asn	Arg	Thr	Asn	Xaa	Met	Ala	Glu	Leu	Asn	Ser	Arg	Gly	Gly	
465					470					475					480	
Xaa	Val	Lys	Ser	Glu	Thr	Xaa	Thr	Asp	Ile	Glu	Gly	Ile	Thr	Arg	Ile	
				485					490					495		
Lys	Tyr	Glu	Ile	Pro	Thr	Leu	Asp	Arg	Thr	Gly	Lys	Pro	Asp	Gly	Gly	
			500					505					510			

Phe Lys Glu Ile Ser Ser Ile Lys Thr Val Tyr Asn Pro Lys Xaa Phe  
 515 520 525  
 Xaa Asp Asp Lys Ile Leu Gln Met Ala Gln Xaa Ala Xaa Ser Gln Gly  
 530 535 540  
 Tyr Ser Lys Ala Ser Lys Ile Ala Gln Asn Glu Arg Thr Lys Ser Ile  
 545 550 555 560  
 Ser Glu Arg Lys Asn Val Ile Gln Phe Ser Glu Thr Phe Asp Gly Ile  
 565 570 575  
 Lys Phe Arg Xaa Tyr Xaa Asp Val Asn Thr Gly Arg Ile Thr Asn Ile  
 580 585 590  
 His Pro Glu  
 595

<210> 1842  
 <211> 453  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1842  
 atggcaatca ttacattgta ttattctgtc aatggatatt taaatgtatg tgcaaaagca 60  
 aaaaatatcc aagtagttgc caataataag aatatgggtc tttttgggtt tttggsmrgc 120  
 atcatcgggc gttcaaccaa tgccatgtct cccatattgt taatatTTTT gcttagcgaa 180  
 acagaaaata aaaatcgat cgtaaaatca agcaatctat gctatctttt ggcgaaaatt 240  
 gttcaaatat atagtctaag agaccagtat tggttattaa ataagagtga atacgdttta 300  
 atatttttac tgtccgtatt gtctgttatt ggattgtatg ttggaattcg gttaaggact 360  
 aagattagcc caaatTTTT taaaatgtta atttttattg ttttattggg attggctctg 420  
 aaaatcgggc attcggttt aatcaaactt taa 453

<210> 1843  
 <211> 150  
 <212> PRT  
 <213> Neisseria meningitidis

<220>  
 <221> misc\_feature  
 <222> (1)...(150)  
 <223> Xaa is any Amino Acid

<400> 1843  
 Met Ala Ile Ile Thr Leu Tyr Tyr Ser Val Asn Gly Ile Leu Asn Val  
 5 10 15  
 Cys Ala Lys Ala Lys Asn Ile Gln Val Val Ala Asn Asn Lys Asn Met  
 20 25 30  
 Val Leu Phe Gly Phe Leu Xaa Xaa Ile Ile Gly Gly Ser Thr Asn Ala  
 35 40 45  
 Met Ser Pro Ile Leu Leu Ile Phe Leu Leu Ser Glu Thr Glu Asn Lys

50	55	60
Asn Arg Ile Val Lys Ser Ser Asn Leu Cys Tyr Leu Leu Ala Lys Ile		
65	70	75 80
Val Gln Ile Tyr Met Leu Arg Asp Gln Tyr Trp Leu Leu Asn Lys Ser		
	85	90 95
Glu Tyr Xaa Leu Ile Phe Leu Leu Ser Val Leu Ser Val Ile Gly Leu		
	100	105 110
Tyr Val Gly Ile Arg Leu Arg Thr Lys Ile Ser Pro Asn Phe Phe Lys		
	115	120 125
Met Leu Ile Phe Ile Val Leu Leu Val Leu Ala Leu Lys Ile Gly His		
	130	135 140
Ser Gly Leu Ile Lys Leu		
145	150	

<210> 1844  
 <211> 768  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1844

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ggcatgggat	ttccgatgct	cggtacaacc	gcattggcct	ttatcatgcc	attgtctaag	120
gttggtgcct	tggtggcatt	accaagcctg	ttaatgagct	tggtgggtct	atgcagcaat	180
aacaaaaagg	gtttttggca	agagattggt	tattatttaa	aaacctataa	attgcttgct	240
atcggcagcg	tcgttggcag	cattttgggg	gtgaagttgc	ttttgatact	tccagtgtct	300
tggtgctttt	tactgatggc	aatcattaca	ttgtattatt	ctgtcaatgg	tattttaaat	360
gtatgtgcaa	aagcaaaaaa	tattcaagta	gttgccaata	ataagaatat	ggttcttttt	420
gggttttttg	caggcatcat	cggcggttca	accaatgcca	tgtctcccat	attgttaata	480
tttttgctta	gcgaaacaga	aaataaaaaa	cgtatcgtaa	aatcaagcaa	tctatgctat	540
cttttggcga	aaattgttca	aatatatatg	ctaagagacc	agtattgggt	attaaataag	600
agtgaatacg	gtttaatat	tttactgtcc	gtattgtctg	ttattggatt	gtatgttgga	660
attcgggttaa	ggactaagat	tagcccaaat	ttttttaaaa	tgtaattttt	tattgtttta	720
ttggtattgg	ctctgaaaat	cgggcattcg	ggtttaatca	aactttta		768

<210> 1845  
 <211> 255  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 1845

Met Gln Glu Ile Met Gln Ser Ile Val Phe Val Ala Ala Ala Ile Leu	
	5 10 15
His Gly Ile Thr Gly Met Gly Phe Pro Met Leu Gly Thr Thr Ala Leu	
	20 25 30
Ala Phe Ile Met Pro Leu Ser Lys Val Val Ala Leu Val Ala Leu Pro	
	35 40 45



Ser Leu Leu Met Ser Leu Leu Val Leu Cys Ser Asn Asn Lys Lys Gly  
 50 55 60  
 Phe Trp Gln Glu Ile Val Tyr Tyr Leu Lys Thr Tyr Lys Leu Leu Ala  
 65 70 75 80  
 Ile Gly Ser Val Val Gly Ser Ile Leu Gly Val Lys Leu Leu Leu Ile  
 85 90 95  
 Leu Pro Val Ser Trp Leu Leu Leu Leu Met Ala Ile Ile Thr Leu Tyr  
 100 105 110  
 Tyr Ser Val Asn Gly Ile Leu Asn Val Cys Ala Lys Ala Lys Asn Ile  
 115 120 125  
 Gln Val Val Ala Asn Asn Lys Asn Met Val Leu Phe Gly Phe Leu Ala  
 130 135 140  
 Gly Ile Ile Gly Gly Ser Thr Asn Ala Met Ser Pro Ile Leu Leu Ile  
 145 150 155 160  
 Phe Leu Leu Ser Glu Thr Glu Asn Lys Asn Arg Ile Val Lys Ser Ser  
 165 170 175  
 Asn Leu Cys Tyr Leu Leu Ala Lys Ile Val Gln Ile Tyr Met Leu Arg  
 180 185 190  
 Asp Gln Tyr Trp Leu Leu Asn Lys Ser Glu Tyr Gly Leu Ile Phe Leu  
 195 200 205  
 Leu Ser Val Leu Ser Val Ile Gly Leu Tyr Val Gly Ile Arg Leu Arg  
 210 215 220  
 Thr Lys Ile Ser Pro Asn Phe Phe Lys Met Leu Ile Phe Ile Val Leu  
 225 230 235 240  
 Leu Val Leu Ala Leu Lys Ile Gly His Ser Gly Leu Ile Lys Leu  
 245 250 255

<210> 1846  
 <211> 768  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1846  
 atgcaagaaa taatgcaatc tatcggttttt gttgctgccc caatactgca cggaattaca 60  
 ggcattgggat ttccgatgct cggtacaacc gcattggctt ttatcatgcc attgtctaag 120  
 gttgttgccct tgggtggcatt accaagcctg ttaatgagct tggttggttct atgcagcaat 180  
 aacaaaaagg gtttttggca agagattgtt tattatttaa aaacctataa attgcttgct 240  
 atcggcagcg tcgttggcag cattttgggg gtgaagtgtc ttttgatact tccagtgtct 300  
 tggctgcttt tactgatggc aatcattaca ttgtattatt ctgtcaatgg tattttaaat 360  
 gtatgtgcaa aagcaaaaaa tattcaagta gttgccata ataagaatat ggttcctttt 420  
 gggtttttgg caggcatcat cggcggttca accaatgcca tgtctcccat attgttaata 480  
 tttttgctta gcgaacaga gaataaaaat cgtatcgcaa aatcaagcaa tctatgctat 540  
 cttttggcaa aaattgttca aatatatatg ctaagagacc agtattgggt attaaataag 600  
 agtgaatacg gtttaatat tttactgtcc gtattgtctg ttattggatt gtatgttgga 660

attcgggttaa ggactaagat tagcccaaat ttttttaaaa tggttaatttt tattgtttta 720  
 ttgggtattgg ctctgaaaat cgggtattca gggttaataca aacttttaa 768

<210> 1847  
 <211> 255  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 1847  
 Met Gln Glu Ile Met Gln Ser Ile Val Phe Val Ala Ala Ala Ile Leu  
                   5                  10                  15  
 His Gly Ile Thr Gly Met Gly Phe Pro Met Leu Gly Thr Thr Ala Leu  
                   20                  25                  30  
 Ala Phe Ile Met Pro Leu Ser Lys Val Val Ala Leu Val Ala Leu Pro  
                   35                  40                  45  
 Ser Leu Leu Met Ser Leu Leu Val Leu Cys Ser Asn Asn Lys Lys Gly  
           50                  55                  60  
 Phe Trp Gln Glu Ile Val Tyr Tyr Leu Lys Thr Tyr Lys Leu Leu Ala  
 65                  70                  75                  80  
 Ile Gly Ser Val Val Gly Ser Ile Leu Gly Val Lys Leu Leu Leu Ile  
                   85                  90                  95  
 Leu Pro Val Ser Trp Leu Leu Leu Leu Met Ala Ile Ile Thr Leu Tyr  
                   100                  105                  110  
 Tyr Ser Val Asn Gly Ile Leu Asn Val Cys Ala Lys Ala Lys Asn Ile  
           115                  120                  125  
 Gln Val Val Ala Asn Asn Lys Asn Met Val Leu Phe Gly Phe Leu Ala  
           130                  135                  140  
 Gly Ile Ile Gly Gly Ser Thr Asn Ala Met Ser Pro Ile Leu Leu Ile  
 145                  150                  155                  160  
 Phe Leu Leu Ser Glu Thr Glu Asn Lys Asn Arg Ile Ala Lys Ser Ser  
                   165                  170                  175  
 Asn Leu Cys Tyr Leu Leu Ala Lys Ile Val Gln Ile Tyr Met Leu Arg  
           180                  185                  190  
 Asp Gln Tyr Trp Leu Leu Asn Lys Ser Glu Tyr Gly Leu Ile Phe Leu  
           195                  200                  205  
 Leu Ser Val Leu Ser Val Ile Gly Leu Tyr Val Gly Ile Arg Leu Arg  
           210                  215                  220  
 Thr Lys Ile Ser Pro Asn Phe Phe Lys Met Leu Ile Phe Ile Val Leu  
 225                  230                  235                  240  
 Leu Val Leu Ala Leu Lys Ile Gly Tyr Ser Gly Leu Ile Lys Leu  
                   245                  250                  255

<210> 1848  
 <211> 516  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1848  
 atgagacata tgaaaataca aaattattta ctagtattta tagttttaca tatagccttg 60  
 atagtaatta atatatgtgtt tgggttatttt gtttttctat ttgatttttt tgcgtttttg 120  
 ttttttgcaa acgtctttct tgctgtaaat ttattatttt tagaaaaaaa cataaaaaaac 180  
 aaattattgt ttttattgcc gatttctatt attatatgga tggtaattca tattagtatg 240  
 ataaatataa aattttataa atttgagcat caaataaagg aacaaaatat atcctcgatt 300  
 actggggtga taaaaccaca tgatagttat aattatgttt atgactcaaa tggatatgct 360  
 aaattaaaag ataatcatag atatggtagg gtaattagag aaacacctta tattgatgta 420  
 gttgcatctg atgttaaaaa taaatccata agattaagct tggtttgtgg tattcattca 480  
 tatgctccat gtgccaattt tataaaattt gtcagg 516

<210> 1849  
 <211> 172  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 1849  
 Met Arg His Met Lys Ile Gln Asn Tyr Leu Leu Val Phe Ile Val Leu  
 5 10 15  
 His Ile Ala Leu Ile Val Ile Asn Ile Val Phe Gly Tyr Phe Val Phe  
 20 25 30  
 Leu Phe Asp Phe Phe Ala Phe Leu Phe Phe Ala Asn Val Phe Leu Ala  
 35 40 45  
 Val Asn Leu Leu Phe Leu Glu Lys Asn Ile Lys Asn Lys Leu Leu Phe  
 50 55 60  
 Leu Leu Pro Ile Ser Ile Ile Ile Trp Met Val Ile His Ile Ser Met  
 65 70 75 80  
 Ile Asn Ile Lys Phe Tyr Lys Phe Glu His Gln Ile Lys Glu Gln Asn  
 85 90 95  
 Ile Ser Ser Ile Thr Gly Val Ile Lys Pro His Asp Ser Tyr Asn Tyr  
 100 105 110  
 Val Tyr Asp Ser Asn Gly Tyr Ala Lys Leu Lys Asp Asn His Arg Tyr  
 115 120 125  
 Gly Arg Val Ile Arg Glu Thr Pro Tyr Ile Asp Val Val Ala Ser Asp  
 130 135 140  
 Val Lys Asn Lys Ser Ile Arg Leu Ser Leu Val Cys Gly Ile His Ser  
 145 150 155 160  
 Tyr Ala Pro Cys Ala Asn Phe Ile Lys Phe Val Arg  
 165 170

<210> 1850  
 <211> 729  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 1850  
 atgagacata tgaaaaataa aaattattta ctagtattta tagttttaca tatagccttg 60  
 atagtaatta atatagtgtt tgggtatttt gtttttctat ttgatttttt tgcgtttttg 120  
 ttttttgcaa acgtctttct tgctgtaaat ttattatttt tagaaaaaaa cataaaaaaac 180  
 aaattattgt ttttattgcc gatttctatt attatatgga tggtaattca tattagtatg 240  
 ataaatataa aattttataa atttgagcat caaataaagg aacaaaatat atcctcgatt 300  
 actgggggtga taaaaccaca tgatagtatt aattatgttt atgactcaaa tggatatgct 360  
 aaattaaaag ataatcatag atatggtagg gtaattagag aaacacctta tattgatgta 420  
 gttgcatctg atgttaaaaa taaatccata agattaagct tggtttgtgg tattcattca 480  
 tatgctccat gtgccaattt tataaaattt gcaaaaaaac ctgttaaaat ttatttttat 540  
 aatcaacctc aaggagattt tatagataat gtaatatattg aaattaatga tggaaacaaa 600  
 agtttgtact tgttagataa gtataaaaca ttttttctta ttgaaaacag tgtttgtatc 660  
 gtattaatta ttttatattt aaaatttaat ttgcttttat ataggactta cttcaatgag 720  
 ttggaatag 729

<210> 1851  
 <211> 242  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 1851  
 Met Arg His Met Lys Asn Lys Asn Tyr Leu Leu Val Phe Ile Val Leu  
 5 10 15  
 His Ile Ala Leu Ile Val Ile Asn Ile Val Phe Gly Tyr Phe Val Phe  
 20 25 30  
 Leu Phe Asp Phe Phe Ala Phe Leu Phe Phe Ala Asn Val Phe Leu Ala  
 35 40 45  
 Val Asn Leu Leu Phe Leu Glu Lys Asn Ile Lys Asn Lys Leu Leu Phe  
 50 55 60  
 Leu Leu Pro Ile Ser Ile Ile Ile Trp Met Val Ile His Ile Ser Met  
 65 70 75 80  
 Ile Asn Ile Lys Phe Tyr Lys Phe Glu His Gln Ile Lys Glu Gln Asn  
 85 90 95  
 Ile Ser Ser Ile Thr Gly Val Ile Lys Pro His Asp Ser Tyr Asn Tyr  
 100 105 110  
 Val Tyr Asp Ser Asn Gly Tyr Ala Lys Leu Lys Asp Asn His Arg Tyr  
 115 120 125  
 Gly Arg Val Ile Arg Glu Thr Pro Tyr Ile Asp Val Val Ala Ser Asp  
 130 135 140  
 Val Lys Asn Lys Ser Ile Arg Leu Ser Leu Val Cys Gly Ile His Ser



50	55	60
Leu Leu Pro Ile Ser Ile Ile Ile Trp Met Val Ile His Ile Ser Met		
65	70	75 80
Ile Asn Ile Lys Phe Tyr Lys Phe Glu His Gln Ile Lys Glu Gln Asn		
	85	90 95
Ile Ser Ser Ile Thr Gly Val Ile Lys Pro His Asp Ser Tyr Asn Tyr		
	100	105 110
Val Tyr Asp Ser Asn Gly Tyr Ala Lys Leu Lys Asp Asn His Arg Tyr		
	115	120 125
Gly Arg Val Ile Arg Glu Thr Pro Tyr Ile Asp Val Val Ala Ser Asp		
	130	135 140
Val Lys Asn Lys Ser Ile Arg Leu Ser Leu Val Cys Gly Ile His Ser		
	145	150 155 160
Tyr Ala Pro Cys Ala Asn Phe Ile Lys Phe Ala Lys Lys Pro Val Lys		
	165	170 175
Ile Tyr Phe Tyr Asn Gln Pro Gln Gly Asp Phe Ile Asp Asn Val Ile		
	180	185 190
Phe Glu Ile Asn Asp Gly Lys Lys Ser Leu Tyr Leu Leu Asp Lys Tyr		
	195	200 205
Lys Thr Phe Phe Leu Ile Glu Asn Ser Val Cys Ile Val Leu Ile Ile		
	210	215 220
Leu Tyr Leu Lys Phe Asn Leu Leu Leu Tyr Arg Thr Tyr Phe Asn Glu		
	225	230 235 240

Leu Glu

<210> 1854  
 <211> 552  
 <212> DNA  
 <213> *Neisseria meningitidis*

<400> 1854

acccccaaca	gcgtgaccgt	cttgccgtct	ttcggcggat	tccggcggtac	cggcgcgacc	60
atcaatgcag	caggcggggt	cggcattgact	gccttttcga	caaccttaat	ttccgtagcc	120
gagggcgcg	ttgtagagct	gcaggccgtg	agagccaaag	ccgtcaatgc	aaccgcgcgt	180
tgcattttta	cggtcttgag	taaggacatt	ttcgatttcc	tttttatttt	ccgttttcag	240
acggctgact	tccgcctgta	ttttcgccaa	agccatgccg	acagcgtgcg	ccttgacttc	300
atatttaaaa	gcttcgcgcg	gtgccagttc	cagttcgcgc	gcatagtttt	gagccgacaa	360
cagcagggct	tgcgccttgt	cgcgctccat	cttgctgatg	accgcctgca	gcttcgcaaa	420
tgccgacttg	tagccttgat	ggtgcgacac	agccaagccc	gtgccgacaa	gcgcgataat	480
ggcaatcggt	tgccagtaat	tcgccagcag	tttcacgaga	ttcattctcg	acctcctgac	540
gcttcacgct	ga				552	

<210> 1855

<211> 183  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 1855  
 Thr Pro Asn Ser Val Thr Val Leu Pro Ser Phe Gly Gly Phe Gly Arg  
                   5                  10                  15  
 Thr Gly Ala Thr Ile Asn Ala Ala Gly Gly Val Gly Met Thr Ala Phe  
           20                  25                  30  
 Ser Thr Thr Leu Ile Ser Val Ala Glu Gly Ala Val Val Glu Leu Gln  
           35                  40                  45  
 Ala Val Arg Ala Lys Ala Val Asn Ala Thr Ala Ala Cys Ile Phe Thr  
       50                  55                  60  
 Val Leu Ser Lys Asp Ile Phe Asp Phe Leu Phe Ile Phe Arg Phe Gln  
 65                  70                  75                  80  
 Thr Ala Asp Phe Arg Leu Tyr Phe Arg Gln Ser His Ala Asp Ser Val  
           85                  90                  95  
 Arg Leu Asp Phe Ile Phe Lys Ser Phe Arg Ala Cys Gln Phe Gln Phe  
          100                 105                 110  
 Ala Arg Ile Val Leu Ser Arg Gln Gln Gln Gly Leu Arg Leu Val Ala  
          115                 120                 125  
 Leu His Leu Val Asp Asp Arg Leu Gln Leu Arg Lys Cys Arg Leu Val  
      130                 135                 140  
 Ala Leu Met Val Arg His Ser Gln Ala Arg Ala Asp Lys Arg Asp Asn  
 145                 150                 155                 160  
 Gly Asn Arg Leu Pro Val Ile Arg Gln Gln Phe His Glu Ile His Ser  
          165                 170                 175  
 Arg Pro Pro Asp Ala Ser Arg  
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 <212> DNA  
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<400> 1856  
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 gacattttcg atttcctttt tattttccgt ttccagacgg ctgacttccg cctgtttttt 180  
 cgccaaagcc atgccgacag cgtgcgcctt gacttcatat tttttagctt ccgcgcgtgc 240  
 cagttccagt tcgcgcgcgt agttttgagc cgacaacagc agggccttgc ccttgctcgc 300  
 ctccatcttg tcgatgaccg cctgctgctt cgcaaagcc gacttgtagc cttgatggtg 360  
 cgacacagcc aagcccgtgc cgacaagcgc gataatggca atcggttgcc agttattcgc 420  
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<210> 1857  
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<400> 1857  
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 Val Glu Leu Gln Ala Val Arg Ala Lys Ala Val Asn Ala Thr Ala Ala  
                   20                  25                  30  
 Cys Ile Phe Thr Val Leu Ser Lys Asp Ile Phe Asp Phe Leu Phe Ile  
           35                  40                  45  
 Phe Arg Phe Gln Thr Ala Asp Phe Arg Leu Phe Phe Arg Gln Ser His  
       50                  55                  60  
 Ala Asp Ser Val Arg Leu Asp Phe Ile Phe Phe Ser Phe Arg Ala Cys  
 65                  70                  75                  80  
 Gln Phe Gln Phe Ala Arg Ile Val Leu Ser Arg Gln Gln Gln Gly Leu  
                   85                  90                  95  
 Arg Leu Val Ala Leu His Leu Val Asp Asp Arg Leu Leu Leu Arg Lys  
           100                  105                  110  
 Cys Arg Leu Val Ala Leu Met Val Arg His Ser Gln Ala Arg Ala Asp  
           115                  120                  125  
 Lys Arg Asp Asn Gly Asn Arg Leu Pro Val Ile Arg Gln Gln Phe His  
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<210> 1858  
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 gacattttcg atttcctttt tattttccgt tttcagacgg ctgacttccg cctgtttttt 180  
 cgccaaagcc atgccgacgg cgtgcgcctt gacttcatat tttttagctt ccgcacgcgc 240  
 ctgttccagt tcgcggggcgt agttttgagc cgacaacagc agggccttgcg ccttgctcgcg 300  
 cttcattttc tcaatgaccg cctgctgctt cgcaaaagcc gacttgtagc cttgatggtg 360  
 cgacaccgcc aaaccctgtc cgacaagcgc gatgatggca atcggttgcc agttattcgc 420  
 cagcagtttc acgagattca ttctcgacct cctgacgttt ga 462

<210> 1859  
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 <212> PRT



Glu Ile His Ser Arg Pro Pro Asp Val  
145 150